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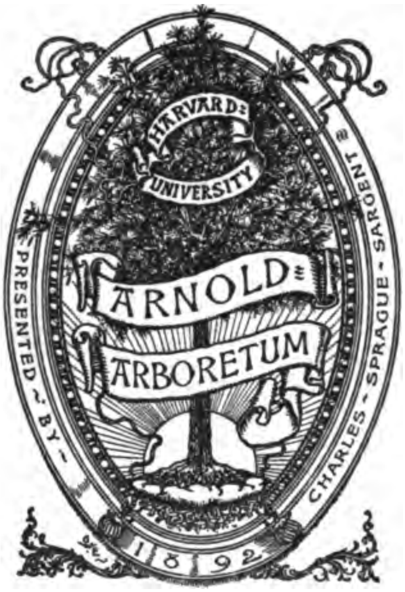

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THE COTTAGE GARDENER:

A

PRACTICAL GUIDE

IN EVERY DEPARTMENT OF HORTICULTURE.

CONDUCTED

BY GEORGE W. JOHNSON, ESQ.

EDITOR OF THE "GARDENER'S ALMANACK," "MODERN GARDENER'S DICTIONARY," ETC.

THE FRUIT AND FORCING GARDEN, by Mr. R. ERRINGTON, Gardener to Sir P. Egerton, Bart., Oulton Park.

THE KITCHEN GARDEN, by the EDITOR, and Mr. J. BARNES, Gardener to Lady Rolle, Bicton.

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THE PHYSIC GARDEN, by a Physician.

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MDCCCL.

TO OUR READERS.

At the close of our second volume we observed, that "a rich harvest was to be gathered in during the year before us." Half that year is now passed; and in closing our third volume we are animated with every grateful feeling, and with all proper pride, for being able to say the harvest work has indeed prospered. The labourers have addressed themselves like true adepts to their task, and, in every sense of the term, the ingathering has been plenteous. Dropping all metaphor, we think we may confidently ask our readers to assent to the assertion, that no gardening periodical ever contained, at a reasonable rate, such a mass of sound and useful information as is to be found in our pages. This demonstrates how efficient have been our contributors. The consequence is, that we circulate more widely than any other horticultural periodical; and we have abundant testimony, in letters now before us, that the consequences are most gratifying. One clergyman, writing from near Newcastle, says:—

"Allow me to thank you for the benefit you are conferring upon (I may say) the country. My profession, of course, brings me into constant intercourse with my people; and I think I can already see an improvement in many respects, from the interest they are beginning to take in their gardens."

Another correspondent, among many who write to the same purport less fully, thus bears similar testimony:

"It is now many months since I accidentally met with THE COTTAGE GARDENER, and most thankful am I to yourself and the other contributors to this excellent little work, which, under so unpretending a shape, publishes so much valuable and practical information. My career, during a period of more than thirty years, passed in most parts of the world, has not been a prosperous one; on retiring from the busy scenes of life, the constantly obtruding retrospect of blighted hopes, and opportunities thrown away, would in all probability have converted me into a wretched hypochondriac but for THE COTTAGE GARDENER. Previous to the perusal of your paper, I took no interest whatever in the garden attached to my house; subsequently, and almost imperceptibly to myself, I found arising in my mind a gradual and steady interest as to proceedings there, when about this time last year the man, who for sundry half-crowns used to "put my garden in order," as he called it, disappointed me: without any settled plan or intention as to persevering, I was induced to try *what I could do myself.* For the first few days I had divers pains and aches, such as might be expected from a person unused to manual labour; however, I persevered, and after a trial of twelve months the result is, that I take my spell of three hours at the spade without flagging, nor do I feel *very* tired when the day's work is over. I have been unremittingly at work summer and *winter;* and, with the blessing of God, I mean to persevere. My guide has been THE COTTAGE GARDENER. Of my failure or my success I will say nothing at present, but one thing I have already achieved, and for that blessing I can assure you I am most grateful—I mean a *contented mind.* I have, by dint of digging, brushed away *all the cobwebs* which at one time threatened to get the better of my reason. I may add as last, though not least, that I have brought down my doctor's bill (no inconsiderable item hitherto) to *nil.*"

Thus cheered on—thus knowing that we are doing some good in our generation—we go on with renewed energy and rejoicing; and we feel assured that at the end of our next volume our readers will not refuse to acknowledge that we are not enervated by prosperity.

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WEEKLY CALENDAR.

M D	W D	OCTOBER 4—10, 1849.	Weather near London in 1848.			Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
4	Th	Sloes ripe.	B. 29.9—29.8.	T. 65—58.	R. .01	7 a. 6	30 a. 5	7 5	18	11 16	277
5	F	Botanical Society's Meeting. Walnuts [ripe.	B. 30.1—29.5.	T. 67—49.	R.	9	28	7 41	19	11 34	278
6	S	Faith. Buntings flock.	B. 30.1—30.1.	T. 74—49.	R.	11	26	8 23	20	11 52	279
7	Sun	18 Sun. aft. Trin. Maple-leaves fall.	B. 30.1—30.0.	T. 73—50.	R.	12	23	9 13	21	12 9	280
8	M	White Poplar-leaves fall.	B. 30.0—30.0.	T. 68—46.	R.	14	21	10 11	22	12 26	281
9	Tu	St. Denys. Hazel turns yellow.	B. 30.0—29.7.	T. 62—46.	R. .06	16	19	11 15	☾	12 42	282
10	W	Oxford and Cambridge Terms begin.	B. 29.8—29.6.	T. 59—41.	R.	17	17	morn.	24	12 58	283

N.B. In the above table of the weather near London in 1848, the highest and lowest state of the (B)arometer and (T)hermometer is shewn for each day, and the (R)ain which fell in decimals of inches.

St. Faith, a virgin martyr, and native of Pais de Gavre, in France, suffered whilst Dacian presided over that country, about the year 290. She appears to have been a favourite saint in England during the prevalence here of the Roman Catholic religion; many churches being dedicated to her memory.

St. Denys, or Dionysius the Areopagite, was converted at Athens by the preaching of St. Paul (Acts xvii. 34). It is said that he became first Bishop of Athens, and that he suffered martyrdom there; but little of his history that can be relied upon is known. St. Denys has been chosen by the French as their tutelar saint.

Meteorology of the Week.—This is one of the periods of the year most uncertain in its weather in this our uncertain climate. From a register kept at the Chiswick Gardens, and from which we chiefly take our meteorological tables, it appears that during 22 years, and of the 154 days occurring between the 4th and 10th of October, both included, in those years, 71 days have been more or less rainy, and 83 have been fair. The greatest amount of rain that fell on any one day during those 71 was about three-fourths of an inch; the average highest temperature during these seven days in those 22 years is 61.7°; and the average lowest temperature 43.5. The thermometer during these days never rose above 64.2, nor fell below 41.1°. The highest temperature of which we have any record as occurring on any of these days was on the 6th, in the year 1834, when the thermometer reached 77° in the shade. The only instance we know of snow falling during these days was in 1829, when during the night of the 7th it occurred in many parts of England; but, when our climate was very different, we find in the Chroniclers that a frost lasted in the year 760 from the 1st of October to the 26th of February. In order to keep the warmth in the soil about the roots of vines intended for early forcing, it is a good plan to keep the border covered with litter, and a tarpaulin at night, uncovering it during fine warm days.

Having thus observed upon the days more particularly under our consideration, we will refer briefly to the meteorology of the month. In October, it has been truly said by an accurate observer, Mr. Webster, great and important changes take place in the whole atmosphere, from the equator to the poles, for it is the shifting of the seasons throughout every region of the globe. Winter and darkness begin to shroud the arctic circle, whilst light and warmth return to cheer the southern pole; what is withdrawn from one hemisphere is immediately transferred in an equal degree to the other hemisphere. The rains no sooner cease in one tropic than they begin in the other; as soon as snow falls in October on the mountains of Greece, and the autumnal rains begin at Algiers, Madeira, &c., the dry seasons set in at the Cape of Good Hope, Swan River, Valparaiso, &c. In England there is no doubt that the weather which occurs during this month has a powerful influence over those which closely succeed to it. Thus it is an observation, founded on long experience, that "if the latter end of October and the beginning of November be for the most part warm and rainy, then January and February probably will be frosty and cold, except after a very dry summer. But if in October and November there be snow and frost, then January and February are likely to be open and mild." If the summer and autumn have been hot and dry, and the heat and the dryness extend far into September, as they have in the present year, then probably the early part of the winter will be mild, but the close of the winter and the beginning of the spring following will be cold.

In the latitude of London the night temperature of October most usually ranges between 35° and 54°, and the day temperature between 50° and 65°. The mean height of the barometer is 29.7 inches, and its range or variation about one inch and a half. The average depth of rain during the month is 2 inches, and the average evaporation from the earth's surface one inch and six-tenths. Yet, let no one suppose that this depth of rain is the same throughout England. The variableness of the rain in different places of our country is one of the most remarkable of the phenomena attendant upon our climate. Thus, at Gosport, the average fall of rain in October is 3.25 inches; at Exeter, 3.1; at Aberdeen, 2.0; at Bath, 2.9; at Carlisle, 3.0; and on the western coast it is far greater. Thus, in the October of 1841 there fell at Liverpool more than 8 inches of rain, whilst at Thetford, in Norfolk, there fell but 3 inches.

Natural Phenomena Indicative of Weather.—Under this head we shall give Mr. Forster's observations, amplified with those made by many other naturalists, being fully convinced that the combined testimony of these never deceive in foretelling an approaching change of weather. "If, after continued fine weather in summer, we perceive the sky streaked with clouds, called Mares Tails, and it gradually gets more obscured; if the swallows skim low over the surface of the meadows; if the cattle snuff the air with distended nostrils; and if spiders come out in unusual numbers, we should say rain was coming;" and we never knew such aggregates of indications prove deceptive.

Ants.—When there is a general bustle and activity observed in ant-hills, and the ants appear all in motion carrying their eggs, apparently for better shelter, it generally intimates approaching rain. This observation was made by many of the ancients, as Aratus, Varro, Pliny, and Virgil. The last-named (Georg. I., 379) says, the shower never comes unforeseen, but that before it arrives, among other intimations, may be seen—

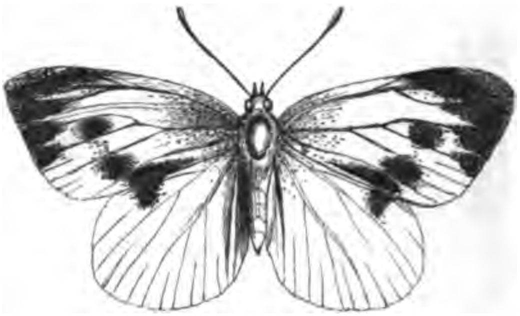
> Ants, as from secret cells their eggs they bear,
> Each following each, the tract continuous wear.

RANGE OF BAROMETER—RAIN IN INCHES.

N.B. Having in our previous volumes given the general aspect of each day, and the highest and lowest degrees of temperature, we now purpose giving the daily extreme points of the barometer, and the amount or rain in decimals of inches during the same years.

Oct.		1841.	1842.	1848.	1844.	1845.	1946.	1847.	1848.
4	B.	29.703	30.123	30.330	29.959	29.568	29.707	30.039	29.988
		29.329	30.052	30.256	29.871	29.528	29.532	29.886	29.804
	R.	0.36	—	—	—	—	0.08	—	0.01
5	B.	29.124	30.238	30.388	29.802	29.969	29.432	29.750	30.151
		28.888	30.190	30.312	29.686	29.891	29.393	29.647	29.588
	R.	0.22	—	—	0.22	—	0.10	—	0.00
6	B.	28.925	30.288	30.292	29.986	29.871	29.544	29.637	30.143
		28.808	30.250	30.251	29.896	29.404	29.430	29.548	30.124
	R.	0.04	—	—	—	0.22	0.20	0.15	0.00
7	B.	29.038	30.298	30.270	29.997	29.491	29.485	29.645	30.128
		28.991	30.258	30.246	29.872	29.433	29.368	29.460	30.030
	R.	0.04	—	—	—	0.01	0.16	0.22	0.00
8	B.	29.224	30.436	30.267	29.946	29.450	29.667	29.885	30.092
		29.027	30.348	30.193	29.568	29.339	29.452	29.763	30.011
	R.	0.03	—	—	—	0.01	0.13	0.03	0.00
9	B.	29.872	30.490	30.183	29.291	29.394	29.652	29.897	30.013
		29.712	30.447	30.086	29.025	29.295	29.496	29.880	29.758
	R.	0.03	—	—	0.01	0.35	0.20	0.22	0.06
10	B.	29.835	30.451	30.022	29.440	29.431	29.788	29.851	29.803
		29.612	30.386	29.956	29.194	29.389	29.447	29.804	29.652
	R.	0.21	—	0.52	0.07	0.43	0.12	0.02	0.00

Insects.—The caterpillars of the Large White Garden butterfly, *Pieris*, or *Pontia Brassicæ*, have been making sad havoc during the close of September and even now, upon our cabbage crops. The butterfly itself is seen at various times between May and October. The following good description is given by M. Kollar:—The wings are white; the upper wings with broad black tips, and the female has two black spots on the middle. The under side of the under wings is light yellow. Breadth, when expanded, two inches. The caterpillar is bluish-green, thinly haired, and sprinkled with black dots, having a yellow stripe on the back, and the same on the sides. These caterpillars are found, throughout the summer and autumn, on all the sorts of cabbage, on horse-radish, radishes, mustard, and similar plants, as well as on water-cresses. The pupæ are yellowish green, with black dots, with a point on the head, and five on the back. The best way to destroy them is picking off and killing the caterpillars, as well as the pupæ, as far as it is possible; the latter are found attached to adjacent trees, hedges, and walls. But care must be taken not to destroy those pupæ which have a brown appearance; because they are full of the larvæ of ichneumons, and other allied parasites, which are the great scourge of these caterpillars. A lady, and an entomologist, gentle as the Lepidopteræ she studies, saw, a few weeks since, about thirty grubs of the Ichneumon fly (*Micrograster glomeratus*) actually eat their way out through the back of one of these caterpillars. So little did the caterpillar seem injured that it was thought he might survive, but he died during the night.



In our last number we brought down our consideration of *the principles of gardening* to the point where it is necessary to consider the circumstances essential for the germination of a seed. Now a certain degree of warmth is essential, for no cultivated plant, has seeds that will germinate below or at the freezing point of water. A temperature above 32° of Fahrenheit's thermometer, therefore, is requisite; and the plants of which the seeds will germinate nearest to that low degree of temperature, in this country, are the winter weeds. For example, we have found the seeds of the *Poa annua*, the commonest grass of our gravel walks, germinate at 35°, and the seeds of groundsel (*Senecio vulgaris*) would probably require no higher temperature. But, on the other hand, the temperature must not be excessively high. Even no tropical seed, probably, will germinate at a temperature much above 120 F., and we know from the experiments of MM. Edwards and Colin, that neither wheat, oats, nor barley, will vegetate in a temperature of 113°.

Every seed differing in its degree of excitability, consequently has a temperature without which it will not vegetate, and from which cause arise the consequences that different plants require to be sown at different seasons, and that they germinate with various degrees of rapidity.

For example, two varieties of early pea, sown on a south border on the same day, and treated strictly alike throughout their growth, were about a fortnight differing in all their stages of vegetation.

	Sown.	In bloom.	Gathered from
Cormack's Prince Albert	Jan. 4.	April 1.	May 14.
Warwick	Jan. 4.	April 13.	May 28.

In another set of experiments, of the following varieties all sown on the 28th of March,

Prince Albert bore peas fit for table June 19—3 ft. high, fine early sort.
Bishop's Early dwarf, do. June 26—9 ins., inferior in every way.
Early Racehorse, do. June 29—3 ft., nothing meritorious.
Shilling's Grotto, do. June 29—3 ft., most excellent.
Dwarf Green Marrow, do. July 10—3 ft., large pea, fine quality, full crop.
Blue Prussian, do. July 10—2 ft., good.
Matchless Marrow, do. July 17—3½ ft., immense pods, large pea, good quality, full crop.
Lynn's Wrinkled Marrow, do. Aug. 1—4 ft., good late sort.
American Marrow, do. July 17—2 ft., fine pea, full crop.
Blue Scymitar, do. July 25—3 ft., good bearer.
Bedman's Blue Imperial, do. July 30—good pea, full crop.
Flack's Victoria, do. July 17—2½ ft., large pea, full crop.
Victoria Marrow, do. July 25—6 ft., large pods.
Auvergne, do. July 17—4 ft., fair crop.
Groom's Superb Blue, do, July 17—2 ft., thickly set with pods, full of fine peas.—*Gardener's Chronicle*.

Adanson found that, under the most favourable circumstances, various garden seeds might be made to germinate in the following very different spaces of time.

Spinach, Beans, Mustard . .	3 days.
Lettuce, Aniseed	4 „
Melon, Cucumber, Cress . .	5 „
Radish, Beet	6 „
Orache	8 „
Purslain	9 „
Cabbage	10 „
Hyssop	30 „
Parsley	40 or 50 do.
Almond, Chesnut, Peach . .	1 year.
Rose, Hawthorn, Filbert . .	2 do.

In one instance M. Adanson certainly must have experimented with old seed, for we have found good new parsley seed, sown on fresh fertile soil in May, had germinated in two days, and its leaves were above the surface within a week from the day of sowing. Then again in the case of rose seed,—at all events, in the case of that of the dog rose,—if the hips be allowed to endure the frosts of winter before they are gathered, the seed will germinate in much less time than is named by M. Adanson. This lesson was probably taught the gardener by nature, for the hips of roses never shed their seed in this country until they have been frosted. The gardener should always bear in mind that it would be a very erroneous conclusion, because a seed does not germinate at the accustomed time, that therefore its vegetating powers are departed, No two seeds taken from the same seed-vessel germinate precisely at the same time; but, on the contrary, one will often do so promptly, while its companion seed will remain dormant until another year. M. De Candolle relates an instance where fresh tobacco seedlings continued to appear annually for ten years on the same plot, though no seed was sown after the first sowing; and the same phenomenon usually occurs for two or three years when the seed of either the peony or hawthorn are sown. Why one seed is more easily excited than another is as yet unexplained, but the wisdom of this one of many provisions for avoiding the accidental extinction of a species in any given locality is readily discerned. An ungenial spring may destroy the plants arising from those seeds which first germinated, but this could scarcely occur also to those of the second and third year, or even to those which were only a few weeks later in their vegetation.

It is not possible to enumerate a general rule relative to germinating temperatures requiring no exceptions, but, in general, for the seeds of plants natives of temperate latitudes the best germinating temperature is about 60° F.; for those of half-hardy plants 70°; and for those of tropical plants about 80° F.; and the necessity for such temperatures depends upon the same causes that prevent the hatching of eggs, unless they be kept for a certain period at a temperature of about 100°. The requisite changes are not produced either in the seed or in the egg, unless it be submitted to the propitious temperature—but why this is requisite to develop the forms, and effect the changes, without which there is no vitality, is a secret at present withheld from man's understanding by their Creator, and we must rest satisfied with the approximate knowledge that heat is the vast and all pervading agent he employs to call life into existence.

Although temperatures ranging between 60° and 80° are those most usually propitious to germination, yet a much higher temperature can be endured by a seed without its vitality being destroyed, and, indeed, may be employed with great advantage when the seed from age or other cause germinates with difficulty. Dr. Lindley found the seeds of a raspberry germinate, though they must have endured a temperature of 230° in the boiling syrup of the jam, whence they were taken; and other instances are known where peas submitted to a temperature of 200°, and left in the water for twenty-four hours until cool, germinated more readily than other peas not so treated. The seeds of *Acacia lophantha* also produced seedlings after being boiled in water for five minutes. The effects produced by this high temperature are to permanently soften the cuticle of the seed, and render it more readily permeable by the air; also aiding the conversion of the starchy components of the seed into saccharine matter; but if the boiling be continued until the composition of the germen (or young plantlet) is altered, the germinating power of the seed is destroyed.

THE FRUIT-GARDEN.

THE PLANTING SEASON.—Having carried our readers through the routine of summer management, such as training, stopping, disbudding, &c., we will now turn our attention to business connected with the rest period, which is ushered in by the decay and fall of the leaf in deciduous trees: and the majority of our fruit-trees are of this character. It is to be hoped that those ardent amateurs and cottagers who have had faith in our directions, and who think, as we think, that there is in reality more room for improvement in fruit culture than in any other department of gardening—it is to be hoped, we repeat, that they have not found the attention required in the summer's culture altogether uninteresting. We can fancy how a keen-set amateur, bent on following out principles in preference to mere rules, must inwardly rejoice when, from the adoption of the platform or dwarfing system, he begins to perceive his trees assuming a compact and short-jointed character; and those portions formerly a complete chaos, through the confusion of rival breast shoots, now studded with innumerable fruit spurs, each macintoshed for the winter.

Let any one who doubts the efficacy of dwarfing-plans carefully and truthfully compare the embryo blossom-buds on trees pampered, and those placed under a systematic control. Let him take a pear or a quince stock on a sound soil and subsoil of prescribed depth, and compare it with one of *the same kind* on a free stock in rich soil, with unlimited powers to range in quest of food. In the latter he will find a bloated tree possessing all the characteristics of a bush, fitting to stop a gap in the hedge: branches long, joints, or internodes, long—everything wild-looking. On the other hand, the same kind on the quince and placed under control, a compact, sturdy, short-jointed, and manageable tree, manifesting its properties at the first glimpse, viz., brown and well-ripened wood and abundance of plump fruit spurs: as different in aspect from the former as a London alderman is from a Paris quack doctor. This is not imaginary; it is a fact on which we have kept our eyes fixed for many years.

But some critic will say, what has this to do with your text, "the planting season?" In answer, be it understood, we would fain pave the way to an enlarged amount of confidence in the principles which we would have carried out. It is best, according to an old maxim, "to begin at the beginning," and, whilst the season is young, we would impress on the minds of our readers that the planting season is the time for these considerations. It matters not who prunes or who dresses, for we could so plant a fruit-tree of any kind as to nullify and bid defiance to all the arts of the pruner—a tree always in perfect health, but for many years totally unproductive and unmanageable through inveterate grossness. If this be a fact, then, it is an illustration of, and a prelude to, the principles of planting which we intend explaining.

MECHANICAL TEXTURE OF SOILS.—Apart from the question of manurial matters, and, as a preliminary step to the consideration of making plantations of fruit-trees, we may offer a few remarks on this head. Drainage, it is well known, exercises the most powerful influence on the texture of water-logged soils. By removing superfluous moisture, a free admission is afforded to the ameliorating effects of the atmospheric action; but even the most thorough drainage will not suffice on many soils, as to fruit culture. The oozy and elastic bog wants consolidation, combined with a mechanical separation of its particles; the clay requires a gritty or sandy medium in order to permit the rains to percolate or slowly pass through it, and by consequence the air to enter freely; whilst the loose sandy soil requires some body to give adhesion to its parts, and, indeed, as the opposite of the clayey soil, to prevent the rain from passing through too rapidly, and carrying away manurial matters in its course.

Those, therefore, who are about planting a whole garden, or section of one, at once, should thoroughly consider this question, and, after examining well the soil and subsoil, endeavour to procure eligible materials for correcting faults in the staple. Where surface soils are naturally inclined to sand, either marl or clay will prove eligible to mix with them; or, what is better by far than either, the furrowings from old pasture lands of a strong or stiff loamy character. The latter, however, is only within reach of a few, and marl is the next best thing, but this also is not found everywhere. Where clay is very stubborn, we think that a burning process might be applied profitably. In addition to these materials, any old vegetable matter, whether it be rotten weeds, leaves, old tan, or, indeed, anything that carries the appearance of humus, may be blended with advantage. If, on the contrary, the surface soil is very adhesive, pure sand, sandy soil of a loose character, and even coal-ashes, may be incorporated with the volume of soil, and, indeed, a proportion of the decomposed vegetable matters suggested for the sandy soil. On such heavy soils we would, by all means, recommend spring planting: and, in that event, the holes should be excavated immediately, in order to undergo a long winter's action for the sake of breaking down the adhesive material. If the whole plot is to be improved, trenching and ridging should be resorted to; here, again, the winter's frost will amply compensate for the difference of a few months, and save labour.

In rendering boggy soils eligible for fruit-tree culture, a somewhat different course must be pursued. Here, however, it is necessary to distinguish nicely the character of the dark material. Some boggy soils are of an elastic character; that is to say, they will rebound on a stamp of the foot; this merely shows that much organised matter exists, in the main composed of by-gone generations of sphagnum, mosses, together with weeds, and grasses, in a state of decomposition. This is above all, perhaps, the most ineligible character of any for fruit-tree culture; nevertheless, it is not a hopeless case; albeit, much culture is requisite. Where a considerable depth of such material exists, burning may be had recourse to; this will correct the acidity and produce ashes, which will be of much utility in opening the texture of the soil. However, before other operations take place, the most complete drainage must be had recourse to. Without this, all other operating will be totally inefficient. Such soils require both sand and clay, or marl, after being rendered tolerably dry: these materials, well incorporated with the native soil, will, with culture, remove the spongy character of the mass, and produce a degree of solidification, which will give a permanency and stability to the crops.

We have been making these remarks with a view to assist those who are about reclaiming ungenial plots of land; for, in going through the country, how many such inclosures we see, some taken from the sides of commons, others from the road sides, left uncultivated in days when land was of less value, and when the population question did not press so heavily. Moreover, hundreds of little nooks have been split from out-of-the-way corners of farms, and not unfrequently composed of a soil of somewhat sterile character. Most of such little enclosures, as we have seen them, are placed under culture without due preparation; too little attention is paid to the amelioration of the staple, and, as a necessary consequence, fruit-trees in a number of cases do not succeed and prove as remunerative as they ought; for we would not only have the cottager to secure his own dumpling apples, but to pay a portion of his rental annually by the sale of apples, pears, black currants, &c., as the case may be.

Our hints here, then, will, we trust, put people on the alert to obtain forthwith some material to improve the texture of their soils according to the principles here explained. One thing we had almost forgotten: those who are improving stubborn plots in the vicinity of towns should always keep a look out for the old mortar or plaster from the pulling down of old buildings: this is a capital ameliorator.

We shall shortly resume the subject of "station" planting, for the majority of our friends, no doubt, merely want to pop in a tree or two; and we will show them how to carry this out both economically and successfully. R. ERRINGTON.

THE FLOWER-GARDEN.

WINTERING BORDER GERANIUMS, &c.—I have already said, the most pressing questions which are asked of us just now is, "how am I to keep cuttings of so and so over the winter? also the best way to secure favourite plants of scarlet and other geraniums, now out in the beds or borders; in short, how am I to secure from frost the greatest quantity of young and old plants for the flower borders and verandas next season, having neither greenhouse nor pit?" This, then, we are to consider to-day: When we have received a cutting of a fine geranium from a kind friend, or valued relative, or in any other way—have struck it in the window, potted it, and afterwards seen it expand to a large size in the border, blooming most profusely, and covered down to the ground with such beautiful green large leaves; and, besides all this, having become acquainted with such a nice cheap gardening work as THE COTTAGE GARDENER, in which they answer all sorts of questions, I say, looking at all these circumstances, who can say that a question about such a plant can be frivolous, or not worthy of notice? I very well recollect the time when I was just at this stage of gardening, and to the present moment I entertain warm recollections of an older schoolfellow who used to assist me and give me advice about my plant experiments; and I dare say all the writers in these pages recollect something of the same kind. Who, then, need be afraid to ask us the most simple questions about such things, when we ourselves well recollect the time when we ourselves were in want of similar information? All questions, whether simple or otherwise, we, therefore, look upon as of equal importance—but the fewer words they are put in the better. We like these questions asked briefly, because then they are much plainer and more easily answered. The greater part of my writing in the last two volumes was suggested from the columns of "Answers to Correspondents;" and, with reference to the subject of this letter, all geraniums, fuchsias, salvias, heliotropes, and a few others for beds and borders, may be kept over the winter without a greenhouse or pit, in any dry room, or shed, from which the frost can be kept out, and now is the proper time to prepare them for the change.

All the larger leaves of *geraniums*, round the bottom and the centre of the plants, ought now to be cut close to the stems—not torn off; this will check their vigour, and let in light and air to dry and ripen the soft parts. All the young shoots issuing from the bottom, or about the collar of the plants, should also be cut clean out, as they are too soft to stand the winter, and any other very young side shoots should be cut in to the last leaf or bud, and the main branches stopped by pinching out their tops just beyond the last truss of flowers. All this should reduce the plant to one half its foliage, and all the softest parts except the top of the leading shoots. Then the vigour of the roots should be checked, if not already done as I formerly advised, by thrusting down a spade not far from them. After this they will stand a smart frost with little or no injury; and the longer they are left in the ground free from frost the better. As all means of farther growth is cut off they will now ripen their wood fast, and the more hard and ripe they are the better they will keep. When they are to be finally moved to their winter quarters, every leaf ought to be cut off, and the main stems cut back to where they are brown, or tolerably ripe, and a little of the soil that will stick to the roots may be left. A dry airy shed would be the best place for them now for the first fortnight or three weeks, till all the cut wounds have well dried up. After that they are ready to put away in a spare upper room, or over a stable, or the hay loft, which is always a safe place, as layers of hay may be put between them and the walls; and in very hard frost a quantity of hay might be thrown over them, or their roots might be set in long narrow boxes, with dry moss, hay, or chaff, thrown in all round them, leaving the tops free, to be covered only in hard weather. Some people talk of keeping them suspended in a cellar, but it is a most dangerous place, as not a cellar in five hundred is dry enough to preserve them from the damp. Even in the driest room damp is more likely to affect them than frost. Old plants of scarlet geraniums might also be kept in the ground all winter, if previously prepared as above; only they must be cut lower down than those for taking up, and six inches of dry old moss, or a foot of very dry leaves, placed all round them, and then thatched by some means to throw off the wet. This is by far the safest plan, as if the frost is kept from the soil, although the tops would die quite down to the ground, the roots, stock, or collar, or even the main roots, would throw up strong shoots for another season, and come much earlier into bloom than those that are dried.

Three or four years since I learned a very curious plan for managing scarlet geraniums that were grown in pots, boxes, vases, &c., to stand about the doors, veranda, or other places out of doors, and unless I had gone through the process two or three times I confess I could hardly believe the effect. We have scores of them used at Shrubland Park for various decorations; such as long narrow boxes to fit the outside sill of windows; pots and vases to stand on pedestals, and by the sides of steps along the terraces, and, indeed, in all conceivable ways. Now, in former years, I used to have some trouble in getting this section up into good trim so early in the summer as they were wanted, while Harry Moore, the man at one of our lodges, beat me right out with some green boxes he had full of these scarlets; so much so, that visitors often remarked how well I must have taught him that branch of decoration; whereas he was teaching me all the time. A fact which, of course, I acknowledged, neither wishing to plough with another man's heifer, as the saying is, or to appropriate the credit due to a worthy cottager. Now the secret of Harry's success was this: he never shifted his scarlets out of the same soil or boxes for several years; and yet every succeeding season they were better and better. He picked, or, rather, carefully cut, off all their leaves when he could no longer trust them to the frost; kept them quite dry in a spare room all the winter, and as soon as the sun began to have some power, in March, he would bring them out in the day time, and put them back at night. But no water was given till their leaves appeared. After proving this plan over and over again, I can confidently recommend it as the best ever hit on for scarlet geraniums that are grown in pots or boxes; and all who have them that way ought now to give up watering them. I have just given orders that those in this place should receive no more watering this season, and that when it rains such as can be turned on one side should be so placed, and other contrivances are at hand to prevent much rain getting into the larger boxes, and such as from their situation cannot be turned on one side during rain. This style of decoration is getting more fashionable every year, and, fortunately, is within the reach of every cottager, I shall not lose sight of it. Therefore it is that I would recommend as many of the old plants as possible should be saved over this coming winter, and in the spring I shall offer many useful hints about the different uses they may be put to next season; such as necessity, experience, and the "force of circumstances," as Buonaparte used to say, have made me adopt here.

All the *fuchsias*, except the broad-leafed ones, as corymbiflora, fulgens, &c., go naturally to rest at the end of autumn, unless they are in rich damp soils, and very little preparation is necessary for them. Still we can prepare them so far as not to allow them to spend their force now in ripening a crop of berries. These should all be removed as soon as the flowers drop off, except, perhaps, a few to raise seedlings from, as nothing tries a plant so much as the last effort of nature to ripen seeds. When they have nearly done flowering, the tops of the young shoots ought to be cut off; but cutting their roots is not of much use. All the fuchsias may be easily kept alive in the borders by a thick covering of leaves, coal ashes, or moss, or, indeed, any kind of protection to keep the soil from freezing; but then they will only make huge bushes next year by throwing up strong suckers from the stool. When large-branched plants, or standards of them are prized, they must be removed before the frost hurts them, and stored away in sheds or dry cellars. We keep them here with their roots in sand in a dry shed. The tallest with their heads leaning against the wall or partition, and the others according to their sizes in front of them; so that we keep none of them in pots while they are at rest.

We take up strong old *salvias*, cut them down to within six inches of the roots, and carry quantities of the soil about their roots, place them in sand just like the fuchsias, and early in the spring the lumps are divided as much as possible, their old roots cut well in, and a little nursing in a pit or greenhouse under the stages will soon turn them into nice bushy plants; they are then turned out of doors, and secured with mats in cold weather till the spring frosts are over, to allow of their being planted in the borders, and no pots are used, but the roots planted in some light rich soil. This is much easier than keeping cuttings of them, and abundance of good cuttings may be got from them when they begin to shoot in the spring.

The *salvia patens*, having roots and eyes just like the dahlia, we treat it exactly the same, only that we plant the roots in sand, but they would do in boxes with sand, or even without any thing, but if they get too dry the plant does not grow so strong in the spring.

Nine-tenths of the *half hardy plants* which grow out in the beds and borders during the summer *could* be kept alive there during the winter also, but the trouble and expense would be a great deal more than they are worth. Nevertheless, when one has a fine favourite plant, but no better means of keeping it through the winter than a make-shift of this sort, even that is better than losing it altogether. Very dry materials, sufficient to secure the earth from freezing, and a waterproof covering to throw off rain and melting snow water, with an ordinary share of patience, are all that is needed for conducting such experiments.

I have said already that when plants are lifted, to be saved in pots, they should not be placed at first in any confinement, unless, indeed, the frost is at our heels, and then only in the night time. A sheltered place out of doors and away from the sun is the safest way to inure them to the change. We do a great deal of this kind of work here, and of all the plans I have heard or read of this is the most successful. We often do not lose half a dozen leaves off a plant just potted from the borders, so large that two men can hardly move the pot or box in which it is placed; but, like other large places which are carried on at a great expense, we have regular contrivances for carrying out our own plans. We have a skeleton shed behind a row of store-houses, without thatch of any kind: merely rafters, and long strips of wood to tie them from end to end. Into this skeleton shed we remove all our new potted plants from the borders, and run mats along the front of it, leaving the top wide open; the mats just break the force of the wind, and no more. If the weather is dry, we pour water along among the pots, to keep the place damp; and a slight shower is given once a day. If a sudden cold or frost sets in during this probation, the skeleton roof is ready for a covering of mats. From ten days to a fortnight in this place is sufficient for most plants to make new roots in the fresh soil, and then they can stand the sun; and, by-and-by, they are put upon the stages of the greenhouse without losing any leaves worth speaking of. I never could set a large newly-potted plant from the borders into a house *at once* without losing more or less of its bottom leaves.

D. Beaton.

Routine Work. *Leaves collecting.*—Our cottage friends, we trust, have not forgotten our earnest request last year, to collect all the fallen leaves they possibly can. We must now reiterate that request. Decayed leaves make the best of all soils for potting purposes; properly prepared they also make the finest of all manures for the flower bed or border, and for the vegetable garden, more especially for manure for early potatoes. Independent of all those valuable purposes, leaves are pre-eminently useful as a fermenting article, of which to form hotbeds. In this respect, they are far more useful and better suited for the purpose than tanner's bark, horsedung, or any other substance whatever. Happy is the cottager that can procure a good store of them. Yet, in passing through the country, how often have we had to lament the utter waste we have witnessed of this auxiliary to good cottage gardening. Even amateurs and gardeners themselves do not seem to care for, and collect, and place in a proper situation to decay, this abundantly-supplied (at least, in the country,) article. As we directed last autumn to our cottage friends, so we do now. Set your children to work in lanes and bye-ways with their rakes and wheelbarrow, or bag, or basket, and collect all the leaves you possibly can. If wanted to make hotbeds with, lay them on a heap in the shape of the roof of a house. This will prevent them from becoming too wet, even in the wettest weather. Turn them over with a fork every three or four weeks. If they are very dry, throw a few buckets of water upon them as you are turning them over. You may also mix any newly-gathered ones amongst those first collected. By this method duly carried on, the leaves will be well-prepared to make a hotbed of lasting temperature, yet moderate heat. Should the leaves not be required for the purpose of yielding heat, let them be spread, as fast as they are gathered, in some covenient place, and all the slops of the house, and the refuse of the kitchen, as well as any liquid-manure, be poured upon them. If a little gypsum or plaster of Paris is procurable, it would be useful to cast it thinly over the heap from time to time. Road scrapings, also, may be used to spread upon this heap of riches, for so, indeed, it truly is. Plenty of this mixture laid upon, and *immediately* dug into, the ground, will increase the following crop tenfold. Some part of the leaves may be wanted for potting purposes. Lay a heap apart, turn it more frequently, beating and chopping the leaves with a spade or fork, and lay this heap flat, in order to receive all the rains that fall, for they will materially assist decomposition. Avoid all mixtures with the leaves for making vegetable mould, intended ultimately, when rotted into a state to pass through a sieve, to mix with pure loam or peat earth, to be used for the more delicate plants, such, for instance, as auriculas and carnations. Lime, coarse sand, or road scrapings, would render this vegetable mould not so desirable for these finer rooted and more valuable plants.

Shelters.—We trust our advice to have all sheltering places for plants through winter in readiness have been attended to. Already have we had a taste of frost. The *heliotropes* are first attacked, next the *geraniums* and *dahlias*, and lastly the hardy *chrysanthemums*. All these may be protected by shelters of mats, and the blooming season considerably prolonged. The frost often leaves us for a month or two, or longer, after giving us a foretaste, as it were, of what he intends to do between this and Christmas, and we should be much to blame if we neglected our favourite flowers, and did not protect them from the first frosts, in order to retain their beauty with us as long as, with moderate care, we could preserve them. Remember the frames and brick or turf pits, and have them all in order to receive the plants they have to shelter through the winter.

FLORISTS' FLOWERS.

Bulbs.—Look over the stores of hardy bulbs, and prepare for planting them. Sort them over, selecting those likely, from their size or shape, to flower from the offsets. The offsets of tulips, as well as others, had better be planted immediately in a nursery bed, each kind, of course, by itself. This nursery bed ought to be made rich, in order to encourage the small bulbs to grow freely. They should not be planted too thickly, or that purpose will be defeated. Such small bulbs, as crocuses, snowdrops, jonquils, some narcissi, &c., intended to be planted in patches amongst shrubs, or the mixed flower border, should have the places, previously to planting where they are to be grown, enriched with some very rotten dung. Dig out the earth first, put in the dung, and mix it thoroughly with the under stratum of earth, then level up the place, and plant the bulbs immediately. *Mice* are very fond of crocuses. To prevent their ravages, chop some furze (gorse or whin), and cover the bulbs with it. The sharp thorns will prick their noses, and effectually protect the roots.

Gladioli.—Excepting the common *Gladiolus communis*, and, perhaps, *G. byzantinus*, the gladioli ought to be planted in a bed by themselves. To succeed well in blooming them the soil should have an extra care bestowed upon it; there ought to be a large proportion of peat earth (heath mould) mixed amongst it, as well as a considerable quantity of vegetable mould; the proportions should be two parts loam, two parts vegetable mould, and three parts heath mould, with a portion of river sand, say one-eighth of the whole. The situation of the bed ought to be open and airy, and provision made for sheltering them when in flower with an awning of canvass. We do not recommend planting in the open bed as yet, the middle of November will be quite soon enough; if they are planted earlier they might spring up and the young shoots be destroyed by severe frost.

Tulips for blooming should be planted about the 10th of November, and when that planting is finished then immediately plant your gladioli. The larger kinds of *narcissi*, such as Grand Monarque, Le Soliel d'Or, Grand Primo, Citronia, and States-General, may either be grown in pots a little larger than those for hyacinths, or will do very well planted in beds of deep rich soil in the open air. If in pots, manage them exactly the same as described for the hyacinth in our last number. Van Thol, and other kinds of early tulips intended to bloom in pots, should be immediately potted, placing from three to five in a pot 4½ inches wide, proportioning the number to the size of the bulbs. Always allow them time in a level place to form roots, previously to placing them in heat to bring them into flower.

Jonquils.—These sweet-scented flowers are very desirable to grow either in pots or in the open beds or borders; manage them the same way as the crocus.

Persian Iris.—A beautiful dwarf variegated flower, sweet-scented, and suitable for pot culture. It does not thrive well excepting in a warm sheltered border in the open air. The roots, unless preserved with great care, are very apt to perish after the first year. Their native dwelling is in the hot sandy plains of Persia, the difficulty of imitating which is no doubt the great cause why we do not succeed in preserving them. The sandy fields of Holland, however, seem to suit them well, and as the price is so moderate (2s per dozen), we need not regret very much their perishable native. Pot them now in a light sandy peaty soil, and place them in a cool dry frame to form roots. They do not force well, but will flower beautifully in the months of April and May, as it were, naturally. More about bulbs next week.

Auriculas and Polyanthus.—As the cold weather has begun now to visit us, it is desirable to place these flowers in their winter quarters forthwith: they are best kept in a frame or pit; the latter is the best, well glazed to prevent drips. A stage of shelves of wood should be placed in the pit at such a distance as to allow the plants to be within from four to six inches of the glass. Every thing about them should be perfectly sweet and clean. Examine the hole at the bottom of each pot, and see that the draining is open; should any worm-cast appear, turn out the plant carefully into the hand, and if the worm is visible, pick it out without disturbing the ball; if not visible, give the ball a gentle tapping with one hand; this will almost certainly cause the worm to creep out. Look carefully also for slugs; you will often find them snugly ensconced in the hole of the pot, or under the leaves of a strong healthy plant. Previously to putting the plants into the pit or frame spread a layer of dry coal-ashes under the stage: this will absorb the damp, and ought to be renewed occasionally during winter. If you have plenty of room it will be advantageous to place the plants so as not to allow the pots to touch each other: this though apparently a trifling matter is not so in reality; when the pots do not touch each other the air can circulate amongst them more freely, the sun can shine through the openings on fine days, and dry the ashes under the stage, and thus benefit the plants greatly. Supposing them all placed—the auriculas by themselves, and the polyanthus also alone—let them have abundance of air by drawing off the lights on all fine days, and on rainy days by tilting the lights behind. We ought to have mentioned previously that the winter habitation of these plants ought to face the south-east. Upon a regular close attention to the giving of air, with very moderate watering, through winter, the health and strength, and consequently the power to produce fine blooms, almost entirely depends. It matters not how good your kinds, nor how excellent your compost may be, unless abundance of light and air is given during the dark months of autumn and winter. These plants are very hardy if properly managed; yet, in severe weather, we would advise a covering of double mats whenever the thermometer indicates about ten degrees of frost (that is, falls to 22°, or 10° below the freezing point of water). In their Alpine habitations they are protected by a thick covering of snow, through which very little frost can penetrate. Our coverings are an imitation of this natural one.

Carnations and Picotees.—It is nearly time to begin to place these plants also in winter quarters. Next week we will describe our method of managing them in this respect. T. Appleby.

GREENHOUSE AND WINDOW GARDENING.

The vegetable kingdom must have formed an element of study and attention to men at the earliest possible period. We are told that when God made man He placed him in a garden, and commissioned him "to dress it and keep it." From this we learn, first, that gardening was man's first work; and, secondly, that even in a state of purity, infinite wisdom connected working with happiness. Think of this, ye who are in the habit of associating working with degradation! Think of this, my fellow workmen, when you look upon your horny hands, and feel your joints somewhat stiff with toil; and though forgetting not that the earth for man's fall was cursed with briers and thorns, cease not to remember that there was One, the reputed son of a carpenter, who by his conduct gave a dignity and an elevation to labour, and thus mitigated, if not entirely removed, the force of the sting contained in the sentence, that in the sweat of his brow man was to eat his bread. Man's primeval condition, therefore, would render an acquaintance with vegetables necessary. To them he would be indebted for his food, his raiment, his lodging, his utensils for cultivation, his materials for cooking, and his instruments of warfare. The first stage of his inquiry would be bounded by a discrimination of those plants which were fitted for his own food and clothing, &c., and the food of the more useful animals, and a knowledge of some of their qualities in a medicinal point of view. A second stage in the inquiry would take place when, owing to an increase of population, there would be the attempt to procure more food than what the earth naturally yielded, and thus agriculture would commence. A third stage in the inquiry would take place when men, not satisfied with necessaries—such as the bread, and the mutton, and the crystal spring—panted after those adjuncts which give a relish to the enjoyments of the table, in the shape of fresh vegetables, the leek, the cucumber, the onion; the pepper, the radish, and the mustard; the luscious melting fruit, the rich confection, and what has been termed "generous wine." Then horticulture would commence. When the desire became prevalent for the possession of luxuries, in the shape of beautiful flowers, rich scents, refreshing odours, cool shades, sparkling fountains, winding walks, and green lawns, then would be the dawning of floriculture and landscape gardening. When, owing to the number of plants discovered, and the impossibility of recollecting the properties of each, an attempt was made to arrange them into kindred groups and families, then, however rude and imperfect the first attempt, would commence the dawning of systematic, structural, physiological, and medical botany.

Our attention will chiefly be devoted in this department to the growing of those flowers that are suitable for the greenhouse and window, either of the amateur or the cottager, not forgetting that the work is especially intended for the latter. To be instrumental in promoting, in however humble a degree, a greater love for the beautiful in vegetable nature will be to us less a task than a pleasure: convinced that wherever that love exists, whether in princely halls or snug parlours, whether seen in the honeysuckle and the rose blending their sweetness around the cottage window in the country; or in the wallflower in a broken teapot decking the *opening* for light and air of a garret attic in a crowded alley of a smoky city; that *there*, though often associated with ignorance, and, sometimes, declensions from virtue, there *are* founts of genuine feeling, and well-springs of goodness, that only require to be opened up and set flowing, to reward the exertions and realize the wishes of the most anxious philanthropist.

Now, for more practical matters. All *greenhouse plants* should now be taken under shelter, if not into the greenhouse, as dashing rains and early frosts may soon be expected. If provided with necessary shelter some of the hardiest may remain out a few weeks longer, which will prevent crowding the greenhouse at first, and enable the work there to be got in a forward condition. *Azaleas* should be all under cover: the most of them will stand a considerable degree of cold, but not without injuring the beauty of the foliage. To keep the *Indica* or greenhouse variety in an evergreen state, the temperature should not fall much below 40°. If the buds are set they will flower pretty well, although from exposure to cold rains and cold air the greater part of the leaves should fall, but then the plants present a miserable, starved appearance, and the flowers are lessened in their beauty for the want of luxuriant green foliage as a back ground. Those intended for flowering early should be kept somewhat close and warmer, before giving them a lift in a forcing-house. If this is done for a season or two, they will get into the habit of coming early of their own accord. If a forcing-house is not at your elbow, you may do much by keeping one end of your greenhouse closer and warmer than the other. This applies to many other plants besides azaleas; those, however, of these beautiful plants which you intend for flowering in May of the following year you must now set in the coolest part of the greenhouse, and allow a stream of air amongst them, provided the temperature ranges from 35° to 40°, and then, if the weather should be warm and sunny in April, you will have to contrive a sheltered and shady place for them, to which you may remove them if the buds swell faster than you wish. You may not succeed quite so well as the great growers, but great honour will be your due if in one house you can manage to grow a number of things nearly as good as they who have a house for each separate tribe or family. We will by-and-by tell you of some little contrivances by which many plants considered rather tender may be managed well in a greenhouse. I have said that a stream of air may be admitted when the temperature ranges from 35° to 40°, but do not mistake me,—I mean outside temperature. Even at this temperature, in a very foggy day, I would be careful not to admit much air without a little fire-heat. You will not be likely to err in giving too much air for some time to come, but I direct your attention to it in time, believing that too much fire-heat and too much air in cold weather are the greatest enemies to all kinds of greenhouse plants in winter. The subject is a large one, but the cream of it may for the present be thrown into two rules: 1st, never in the coldest weather make up your greenhouse fire for the night without consulting the outside thermometer, and noting the changes that have taken place, as so many indexes from which you may attempt to predicate what the weather will be before morning. 2ndly, fires will seldom be wanted in the morning, unless for promoting a healthy circulation of air in damp foggy weather, or when a severe storm sets in; but, even in the latter case, always endeavour to determine whether the day will be sunny or not, as, if the sun shines, the less heat you have in the flue or pipes the better. In such cases the raising of the temperature 10° or 15°, with a little top air, will do no harm. The raising of the temperature so much by fire-heat would be ruinous. The most experienced will sometimes be deceived by the sudden outbreaking of the sun for several hours in severe weather; and when there is a considerable amount of artificial heat in the house, it is much preferable to damp the house, and shade for a short time, than to admit air by the front sashes, which is 20° or 30° lower than the temperature of the house. When you have means of heating the air before it is introduced among the plants, the case will be somewhat different. As we may expect as yet several weeks of mild weather, the alluding to this matter may be deemed somewhat irrelevant, but we have acted upon the principle that to be forewarned is to be forearmed.

BULBS of all kinds usually employed for winter decoration should now be planted for the first and successional blooming. If you merely wish to flower them, any sort of soil will do, and even half-rotten moss will answer admirably, as you chiefly develop the matter previously stored up in the bulb. But if you wish not merely to flower them, but to grow them, so as they will flower again—if not the first, at least the second succeeding year—then you must plant them in light rich soil, and the leaves must be encouraged and kept green as long as possible after the flowering, withholding water only when they begin to become yellow. In potting, use small pots instead of large ones; a four or five-inch pot will grow a hyacinth admirably, especially when assisted at times with a little weak clear manure water, made either from soot or guano. In a similar pot, half-a-dozen crocuses and snow drops may be placed, and those of the smaller tulips. The larger narcissus will require a six-inch pot to grow them well.

In potting, put in the earth loosely, and do not set the bulb on the surface, as some advise, but let it be at least half covered, which will not only secure its fastening, but render less water in the growing season necessary, as evaporation from the bulb will, in a great measure, be prevented. The reason why in growing bulbs in pots, during winter, it was ever recommended to place them on the surface, was owing to the fact that, when the soil was put in firmly, the damp was apt to arise between it and the base of the bulb, and decay frequently ensued. This evil will be avoided by filling the pots with the soil as lightly as possible. In the case of small bulbs they may be set almost upon the surface; as if, after planting, they are placed in a sheltered corner, and covered to the depth of several inches with coal-ashes or leaf-mould, &c., the weight of the covering will sink the bulbs sufficiently. Where no covering is used, but the pots are placed in a dark room or cellar, the bulbs should be somewhat covered at first. Either of these contrivances should be resorted to after potting, as it is bad management to set them at once either in a greenhouse or window. When growing out of doors these bulbs are always covered to a greater or lesser depth, and the flower-stalk never appears until there are abundance of roots formed to support it; because the earth, upon an average, is higher and more equal in its temperature at that period than the atmosphere surrounding it. Now, if you set your potted bulbs in front of the window at once, the top part of your bulb will be as much, and frequently more, excited than the lower part, whence the roots issue, but, as the strength of the flower-stem depends upon the roots being somewhat in advance of the stem and leaves, we advise placing the pots in a cellar or a room where an equal temperature can be maintained; or covering them from four to six inches out of doors, protecting them from wet and frost, and then transferring them to the greenhouse or window when the pots are well supplied with roots. When wanted about Christmas, the pots best filled with roots must be transferred to a hotbed next month. One advantage of using small pots is that they can be easily used for filling vases of all descriptions; and, when covered with green moss, they thus, in masses, look very beautiful, and require but little water, the moss preventing the moisture evaporating. The moss should be steeped in hot water previously, to set slugs and worms a scampering, and then spread out to dry a little before using it. In growing bulbs in glasses, choose coloured instead of clear ones, as the roots have a distaste for light. Put some little bits of charcoal in the water, but, nevertheless, change it frequently. Let only the lower part of the bulb be moistened; you cannot well cover them with earth, but you can set them in a cellar. If you wish, however, either to see yourself, or point out to your children, the process of root-making, set the glasses on the chimney-piece, which, if either iron or stone, will be the best place for them in the room—supposing that a fire is kept in the chimney—for some people are so very wise that they will not light a fire before a certain day, be the weather fair or foul, mild or frosty; preferring rather to have their toes and finger-ends frosted, and chilblained into the bargain! Now, we place them there that the water, the medium in which the roots are to elongate, may be, upon an average, warmer than the apartment; and we would remove them to the window, to pay their obeisance to the king of day, when the roots were plentifully formed, and the flower-stem had began to grow; and, when changing water, renewing it again at a temperature rather higher than the air of the apartment. But if you merely wish to have your hyacinths, &c., blooming in glasses without seeing them growing, then all you have to do is to grow the bulbs in small pots in the usual way, and when showing bloom, turn them out of the pots, rinse the ball through a pail of water, at 50° Fah., and then transfer the roots and bulbs to the blooming glasses.

R. Fish.

HOTHOUSE DEPARTMENT.

Exotic Orchidaceæ.—The cultivation of these singular, beautiful, and, in several instances, powerfully fragrant plants, being on the increase, and that to a considerable extent, we have been requested to write a series of papers weekly for the Cottage Gardener on this subject. It so happens that we have to take periodical journies into various parts of Great Britain, and by that means it has come under our observation that there are a great number of amateurs in various parts of this country who have begun, or are about to begin, to grow exotic orchids. It is chiefly for their instruction that we have consented to give, briefly, yet sufficiently fully and explicitly, our experience in their culture, to lead them into the right method without making fatal mistakes or incurring ruinous expenses, whereby they would soon become disheartened, and abandon them as plants too difficult to grow. There are, also, in large gardening establishments, both public and private, many young gardeners who have expressed to us the great desire they have to know something of the right way and best method of cultivating orchids; and there are others who, we know, have often wished some one would give plain, short rules, by which they could successfully cultivate these plants.

Again, it is well known to numbers of the cultivators of orchids, that the writer of this has had considerable experience, and has been successful in this peculiar branch of floriculture. In addition to a considerable number of years' constant and successful practice, I may mention to my readers the fact that I have under my care a large select collection; and I invite those who do not know the fact to call at the Pine Apple Nursery, and judge for themselves whether I am justifiable in undertaking to teach "orchid-growing made easy." To the friends who do know me I need not say a word, for I have had unvarying approvals from them of my correct views and right method of cultivating those interesting plants. Having now, as I think, made it quite clear and evident that there are persons, and not a few of them, that want this knowledge, and that from having had extensive experience I may venture to presume that I can impart that knowledge, it only remains to say a few words about the medium through which we propose to detail our experience, viz., The Cottage

GARDENER. Now, if there was no other reason, the cheapness of this periodical is quite sufficient to recommend it as a proper vehicle for this desired information, for it will place it within the reach of the poorest-paid under-gardener. It, perhaps, may be said that these pages should only contain instruction for the cottage labourer; but we reply, and reply advisedly, that this periodical is intended for all who are fond of gardening, though more especially for amateurs and cottagers; and the greater part of the pages, therefore, are devoted to these classes of gardeners. And why should not they be orchid fanciers? There is nothing in the world to prevent them. We stated above that several amateurs (by which title we mean a man who does not employ a gardener, but works his garden with his own hands) have begun to grow these curious and beautiful floral objects, and we hope to see the day, now that glass is so cheap, when orchids will be cultivated in a much greater number of gardens than they are at present. And we trust the pages we are about to write every week will be found useful, and have a tendency to increase the knowledge, and extend the culture, of these our most favourite plants.

Our plan is, *first*, to describe the proper kind of habitation for orchidaceæ; *secondly*, to describe the various methods of growing: 1, in pots; 2, in baskets; and, 3, on logs or blocks of wood, giving the proper soils for each, and the best kinds of wood for blocks. *Thirdly*, the proper degrees of heat and moisture, including giving air and watering the plants, as well as moistening the air at all times of the year. *Fourthly*, the first week in every month to give a calendar of operations for the month ensuing. *Fifthly*, and lastly, to give lists of the orchids more worthy of cultivating.

Next week, if possible, we will give the calendar of operations, and then proceed with our regular essay week after week. We propose finishing it by the end of September next year, so that our readers will have in the third and fouth volume a full description of one year's culture of orchidaceæ. T. APPLEBY.

THE KITCHEN-GARDEN.

ASPARAGUS.—A slight hotbed may at the present season be advantageously made for planting roots of this vegetable, so that a late autumn and early winter supply of fine shoots may be obtained. The glass lights should be taken off, at the commencement of forcing, entirely during the day in fine weather, and tilted when the weather is unfavourable, so as to admit a free circulation of air, without which the asparagus cannot fail to be weak and of a bad colour. The bottom heat, whether produced from a tank, from dung, or from other fermenting materials, should at first be moderate, and when the shoots have begun to start, a little additional heat then applied will assist in bringing them forward. The roots should be taken up very carefully with a strong fork or two-pronged grubber, and must never be allowed to lie about afterwards; place them at once on the bed prepared for them, and let them be lightly covered over with good decomposed vegetable soil. Leaf-mould and old tan are both very good for this purpose; put about six inches deep under the plants, which should be covered with the same material about two inches deep at first, and some more applied as a top-dressing as soon as the first buds are peeping through. Asparagus may also be produced by placing its roots in shallow tubs, boxes or pans, and putting these in the mushroom or hothouse.

ASPARAGUS-BEDS.—Attend to the autumnal management of these as the stalks appear turning yellow or dying-off, and the berries become ripe. First, collect the berries for what seeds may be wanted, and put them away for the present, for the seeds can be washed out on any rainy day, dried, and put away in paper-bags until wanted. After the berries are thus taken cut down the stalks close to the ground with a sharp knife or reaping-hook, and clear them all away. Then, if any weeds exist, let them be hoed up and all raked off and taken away neatly; next, with the digging-fork, dig up the beds carefully, without injury to the crowns, after which put on a thorough good top dressing of manure—the richer the better. Good half-decomposed pig-manure is excellent for the asparagus-bed; let it be spread regularly over the surface of the beds. After this (in order to secure a neat appearance) fork up the alleys carefully, without hurting the roots, then set a line along the side of the beds, and make up the edges neatly with the spade or shovel; then just run along and chop it out, and throw the crumbs over the manure: it is not necessary that it should all be covered. When all is completed, the beds will look about three inches above the level of their alleys. By this mode the annually-made roots growing into the alleys will be left uninjured; and the rich soluble parts of the top dressing will be washed down to the roots during the winter months. We should always remember that the asparagus is not like the pear, or plum, or other plants grown for their fruit, for these if over-luxuriant have to be either replanted or root-pruned. Unlike them, asparagus wants all the strength it can get; therefore never hurt its roots by digging out deep alleys, and chopping through the best roots, to get earth to cover the tops of the beds with. Such treatment not only is not required, but is very injurious, leaving the chopped-through roots exposed to all weathers for the winter months—roots on which the next year's crop depends. Such treatment, however, is often seen in large gardens, where a better example ought to be exhibited.

ROUTINE WORK.—Continue to fill up every vacant space of ground, by planting *Cape brocoli* and *borecole*, if any strong plants of these are left in the seed bed, as well as *cabbage* and *coleworts*. Plant out also into beds, banks, or borders, a good store of small plants to stand for planting in the early spring. Plant *leeks*, and earth up those that are advancing, not forgetting, at the same time, the occasional application of liquid manure. Do not neglect to provide a good stock of *lettuces*, which should be planted generally in dry healthy situations, continuing to prick out small plants in abundance. Transplant *parsley* into warm and sheltered situations, and put a few roots in the greenhouse or frame, for securing a good winter supply. Frame *radishes* and *carrots* should now be sown on slight hotbeds, and the earth placed close to the glass, so that the plants may have the full benefit of the light; and a free circulation of air must be kept up. *Cucumbers* should be sown in succession, and those already advancing should be well aired. A root or two of *rhubarb* may also be placed in heat. JAMES BARNES & W.

MISCELLANEOUS INFORMATION.

MY FLOWERS

(No. 46.)

We are almost reconciled to the departure of our summer flowers by the increasing employment we find in the garden. From this time we shall never be at a loss for something to do in the borders and the shrubbery; for almost every gardening operation may be effected during the moist, cool months, now rapidly advancing. This autumn promises to be an early one, and will soon permit us to begin digging, trenching, planting, and transplanting, and making the new dispositions of beds that may have struck our fancy during the summer. There is a love of novelty in every heart—even in our gardens we display it; for we grow tired of the old circles, half circles, and squares, and delight in twirling our borders into other forms, as fancy moves us. I have myself signed the death-warrant of two triangles, of which I am weary, and am growing impatient for the soil to be wet enough to remove the plants. The magnolia may be planted now, and a beautiful plant it is; but it should be placed against a wall, if possible, and matted during the winter. The rhododendron and arbutus, too, can be moved now. The former *must* have bog soil to succeed well in, although they will exist without it, but in a very comfortless condition, and rather displease than gratify the eye. On wild heathy soil they do extremely well, and seem to grow spontaneously. I remember, some years ago, being charmed with the effect of these beautiful flowers in the garden of Fangrove Lodge, in Surrey. The house was built by the late Sir Herbert Taylor, and the gardens and pleasure grounds were laid out entirely under the directions of the venerated Queen Charlotte and her accomplished daughters, and great indeed was the taste displayed. A portion of heathy common had been enclosed, of which, part formed a rising ground; and it seemed to have been completely clothed with rhododendrons, azaleas, and other bog plants, through which winding walks were judiciously cut, with so much taste and ease that they seemed to have been made without art or labour, and led you on with delight to the brow, where they terminated in a lawn, covered with patches of the same flowering shrubs. The space of ground was not large, but was so contrived as to appear of much greater extent, and the whole effect was admirable. In such situations as this—on the edge of a sandy, heathy common—these plants would thrive without any difficulty, and would well repay some little expense in procuring them. At High Clere Park, the seat of Lord Carnarvon, they flourish luxuriantly, and mingle with the trees in the beautiful woods through which the drives are made; but then the ground was carefully trenched to a proper depth, and filled with bog soil, as the natural soil would not suit them. The rhododendron grows in many lands, under many skies, and there are many varieties. One blooms wildly on the shores of the Black Sea, spreading even into Persia. This is the common species, the rhododendron ponticum; it loves the cool shade of woods, and does not grow in high situations. Then there is a very hardy species, the Catawiense rhododendron, which belongs to America, growing in clumps on the hills and plains, as furze grows in England. Other varieties clothe the stern mountains of Switzerland, and the grand and lofty Alps, where they advance so fearlessly amid the snows, that they bloom richly where no other woody plants can live, and dwell among the simple herbs and mosses. The tall forest trees shrink from the inclement blasts of these high regions, but the little sturdy rhododendron, with its large brilliant blossoms, defies the withering blasts that sweep over them, affording, too, the only fuel that the wandering herdsman can procure. The white mountain hares also feed on the bark of the rhododendron, when the deep snows cover up all other vegetation; so that these beautiful shrubs supply food and firing to the few living creatures that frequent those desolate heights. Let us remember this, and it will increase the interest we feel in them. How glowing must be the appearance of their rich blossoms under the sparkling frosty sunbeams of those icy regions; and how they must cheer and beautify the dreary passes of those trackless wilds. To the Christian's heart they must speak with power, as he gathers his bundle of sticks, scaring away the startled hare from her evening meal; for even among the solitude and gloom of perpetual silence, he will observe and adore the goodness of God, who giveth to all creatures "their meat in due season," and whose voice ever sounds louder and sweeter when that of man is still. In the soft rich vallies of Piedmont, too, the rhododendron flourishes, as also in those of Dauphinè—thus decorating hill and vale, and accommodating itself to the various haunts of men. Without bog or peat soil it is useless to attempt to cultivate them successfully, as far as my knowledge extends. I have seen them in common soil, but they were poor and unsatisfactory. For my own sake I wish it were otherwise; but I recommend those of "my sisters" whose gardens are situated on the borders of heaths or commons to try if they cannot succeed in growing and blooming them well.

And now "My Flowers" close. The evening of their short existence has arrived; but before the last leaf falls they would speak one parting word of warning to our hearts. They tell us that man "cometh forth like a flower, and is cut down." "As a flower of the field he flourisheth; for the wind passeth over it, and it is gone; and the place thereof shall know it no more." "Surely the people is grass." At this solemn time of God's judgment and man's impotence, when the sword of the Lord is stretched over our mourning land, mowing down the people as the scythe sweeps down the mowing grass, is it not a "time to speak?" *We* are more peculiarly connected with the soil and the operations of the husbandman. Let us remember "the threshing place of Araunah, the Jebusite," "the angel that destroyed the people," and also the mercy that stayed the chastising hand. Let us, as David did, lift up our eyes, and see whence the affliction comes; let us, as he did, fall upon our faces before the Lord, instead of seeking, by human means, to turn aside the sword. The faithful people of God may do great things for their country's deliverance in times of peril and distress; for the father of the faithful pleaded with God for the guilty city, "and he said, I will not destroy it for ten's sake." Let our flowers repeat continually that solemn truth, confirmed by the fall of thousands in our streets, "Surely the people is grass."

TO CORRESPONDENTS.

American Store Houses (*J. B. S.*).—Your communication shall appear in our next double number; if you send your suggestions they shall appear at the same time.

Rhubarb Planting (*J. Wilson*).—The end of this month, and from that time until February, during any dry open weather, is a good time for doing this. Trench your ground deep, manure it richly, and take care that your plants have each a plump healthy bud at their top. Answers to your other questions next week.

Wintering Plants in Old Cucumber Bed (*W. F.*).—Take out the decayed dung by all means, and fill up the space with coal-ashes, to plunge your potted plants in; the manure would only tend to keep up a root action, which is to be avoided in winter. See what Mr. Beaton says to-day upon the subject.

Recipes for Gourd Soup, &c. (*A Lady Subscriber from the first*).—We shall be obliged by your forwarding the recipes. All questions, but a few requiring consideration, have been answered that have reached us within ten days from September 27th; therefore, if yours remain unnoticed, the letter never came to our office.

Setting Cucumbers (*A Country Subscriber*).—It is not necessary to impregnate the flowers of the cucumber for the purpose of obtaining its fruit, but it is when seed is your object. The *potato murrain* has *not* set in in the south, as you say it has in Cumberland, and where it has appeared to any extent it is only among the *late-planted* or the *late-ripening* varieties; every result is in favour of autumn planting. *Apples* are abundant in the southern counties, but *pears* generally have failed. Open the ground about five feet from the stem of your unfruitful, over-luxuriant, *mulberry tree*, and cut away its tap-root if it has one, or two or three of its main roots if it has not one; do this immediately. The *Malta lettuce* is very good for a summer crop; it is a cabbage lettuce; we never heard it called by any other name. You will find the explanation of *plants dedicated to each day* at p. 176 of our first volume. The emphasis is on the first syllable of *clem*atis, and on the third of œno*the*ra; ane*mo*ne is correct, but a*ne*mone is the usual pronunciation.

Nitrate, Muriate, and Sulphate of Ammonia (*W. B., Sheffield*).—All these salts have been applied beneficially to flowers in small quantities. If used as a liquid manure, half-an-ounce to a gallon of water is sufficient. Sulphate of ammonia is said to have been applied in October to the soil destined to be planted with ranunculuses with great benefit to them. If applied in the form of powder, to be dug in immediately, one pound of any one of the ammoniacal salts must be sprinkled over thirty square yards. We know nothing of the compound manure you mention.

List of Crocuses (*F. C.*).—You are mistaken, we have not given a long list of these flowers; we will shortly publish a list of some of the best. Your other question next week.

Persian Iris (*O.*).—Yours throws out many offsets but does not bloom. It is *not* unusual for it to produce numerous offsets, and the cause of not blooming is probably the want of proper soil; it delights in deep sandy loam, dry at the bottom.

Shrubs for a Damp Place (*Ibid*).—Magnolias and the snowdrop tree will thrive best there.

Eucomis undulata (*Ibid*).—This is probably the plant you inquire about; it is a Cape bulb, and grows in light sandy loam. Ixias, Sparaxis, Tritonias, Watsonias, Trichonemas, and a few others, are treated as the Ixia, in sandy peat, to be potted now. Mr. Beaton will, ere long, give lists of fuchsias, verbenas, &c.

Liquid Manure applied Underground (*J. D., Old Brompton*).—Your perforated zinc pipes will answer nearly as well as those made of clay draining pipes. You will oblige us by letting us know the result of the application both to your celery and asparagus. You will probably have to take up the pipes laid horizontally to clean out the sediment. We have no doubt of the application being beneficial.

Wintering Fuchsias (*G. A.*).—You have a bed of young fuchsias in pots, which you propose to winter by covering them with pots, and filling in between them with ashes, and to cover the whole with double mats during hard frost. But why take such trouble, as you have them in pots? It would be much better to remove pots and all under cover; any shed or cellar will keep them with half the trouble, if you cover them with hay or straw to keep the frost from them. It is of no advantage to keep the tops of such young plants alive, as the roots will make better shoots next season.

Gloxinias, Gesnerias, and Achimenes (*A Reader from the beginning*).—These are kept dry in a warm place in winter, and early in the spring are potted in fresh soil, and brought forward in a stove or hot-bed. They all do in the same compost—two-thirds sandy peat and one-third light loam; or they will do in peat and leaf-mould with sand; or in rough sandy peat only; the last is the safest for amateurs. A damp warm atmosphere is necessary, to grow them well, till the flower-buds appear, then they require a drier place, and they flower best in summer in a cool greenhouse.

Japan Lilies (*Ibid*).—These (usually called *Guernsey lilies*) are perfectly hardy, and like a deep light soil; when grown in pots rough sandy peat is best for them. See Mr. Appleby's account of the family, p. 309, also p. 291, vol. ii.

Heating Pits (*S.*).—You cannot heat the two divisions at the same time by your arrangement of the flues and one fire; not, at least, without trouble and a constant attendance to move the dampers; whichever flue heats the fastest when the dampers are drawn will carry all the smoke, and the other must be fed as soon as the first is hot enough. Give up the idea, and have the fire-place at one *end* of the range; a front flue and one across each division at the farthest ends will then suffice, with a damper anywhere between the two ranges; by that damper you can regulate the heat, for the first or for the two divisions. You lose too much room by the return flues at the back, far more than what the extra heat is worth.

Unfruitful Wall Trees (*A. T. Blythe*).—Your main wall faces nearly due south; the earth is two feet above the level of a lane on the north side of the wall; the soil light; the trees do not bear. Mulching the whole border, and watering with pond water occasionally, from the middle of May to the end of July, are the best remedies.

Rainbow Arrangement of Flowers (*Ibid*).—For your purpose the annuals mentioned at pages 137 and 274 of our first volume are the best for flower beds in May. Lists of spring-flowering hardy bulbs have been given already, and Mr. Beaton will offer more advice on the subject immediately.

Error.—At p. 323, col. 1, line 20 from bottom, for "one eye" read "few eyes."

Distance of Plants from Glass (*Ibid*).—The plants in your pit during the winter should be six inches from the glass, but some of them must be more distant and some less, for they are of different heights. We have had some all but touching the glass.

Chrysanthemums (*Ibid*).—These ought now to be in bud: of course you have not stopped any of them since the end of July. If you have, you nipt off the flower-buds.

Petunias (*W. H. G.*).—You had resolved to treat these plants as annuals, and raise them from seed in the spring—abandoning the old plants and taking no cuttings from them. Your seedlings, however, are not worth looking at: the colour is good, but the size of none much exceeds that of a shilling, neither of those in your pots or borders.—It is not in your power to improve them much, for seedling petunias never improve in shape or colour, and hardly in size, by cultivation. They turn out with all growers as they have with you—sometimes good, but oftener good for nothing.

Night-blooming Stock (*W. L. Ollard*).—This, the *Mathiola odoratissima*, is worthy of all the care you can bestow on it. It is a half-hardy frame plant, and we have seen it survive the winter close under a wall in a light dry soil. It is, however, rather impatient of a pot. Have it potted soon in light mould—using a small pot—tie it to a neat stake and set it in the shade, say in a north window, for three weeks. After that allow it a sunny aspect, but do not confine it too long in a warm room. On fine sunny days place the pot outside all day, and be sparing with the watering-pot. March or April is the best time to strike cuttings from it in the usual way.

Madame Desprez Rose (*Clericus, Beds*).—You say that buds of this inserted in June have produced healthy shoots now bearing flower buds. The circumstance is not unusual with gardeners. We have seen a bud inserted early in June, which formed a large head for a standard rose before the end of the season, and flowered from the second week in July. That section of free-growing Bourbons to which Madame Desprez belongs, if budded early in June, will unite to the stock sufficiently in three weeks: and if the shoot of the stock is then cut back, the bud starts, and is in bloom in less than a month.

Anemones (*A Cottage Subscriber*).—You have a box of anemones grown to about "a couple of inches high, which appear to be stagnated in their growth," and you ask us their winter treatment. How did they come to be "two inches high" about the middle of September? They should rather have been at rest then. We presume they were grown in the box last season, and you let the rains start them too soon. You must transplant them to a border at once, for the soil in the box does not suit them.

Vines (*W. Newton, Castle Bromwich*).—Your vine leaves are no doubt infected with the prevailing mildew, for which the only cure known it would appear is sulphur. As to border making we will soon endeavour to assist you through The Cottage Gardener. Look at Mr. Fish's remarks in a recent number.

Suggestions (*J. M.*).—Some of your suggestions have been adopted; others cannot be at present; and some we have no means of carrying out.

Night-blooming Stock (*Twig*).—This is the species referred to by our correspondent at p. 29 of our second volume. Some directions as to its culture are given to-day, in answer to another correspondent. It is increased by young cuttings under a bell glass.

Fernery (*R. G. L.*).—If you will refer to Mr. Appleby's three papers at pp. 98, 106, 128, in our first volume, you will find full directions for the construction of the fernery and the culture of the plants. For *arum* culture look to pp. 51 and 180 of volume 2. For *oleander* culture also consult the Index of our first volume. All the *cassias* will grow well either in light loam or loam and peat mixed.

Late Strawberry (*W., Yarmouth*).—The best latest is the Elton. The White Alpine is small, but luscious, and will bear on until winter.

Platform Planting (*E. B., Beckenham*).—You will find the information you require in our ninth Number. There is a paper there on the subject, by Mr. Errington; though there is also much relative to the same subject in other parts of our first volume.

Uniting Stocks (*X. Y. Z.*)—You may unite the bees of two stocks though situated at present in distant parts of the same apiary, or even of the same garden.

Names of Plants (*Clericus Sarisburiensis*).—Yours is *Loasa lateritia*. (*Lover of Flowers from Childhood*).—We cannot be certain of the fern from the specimen sent, but we think it is *Polypodium effusum*. (*G. J. M., Gateshead*).—Your seeds are those of *Cantua*, but we know of no such specific name as *ticta*. *Cantua ovata* is called *Cantutica* by the Peruvians. The flowers of the Cantua resemble those of the Gilia and Ipomopsis. The Cantuas are pretty greenhouse plants, with white or purplish flowers, all natives of Peru or Brazil. If the seeds were ours, we should sow some of them now, and some not until next spring. The soil they prefer is a mixture of equal parts of loam, peat, and sand. (*A Cottager*).—We wish every one would send specimens to name in the neat and easily-referred-to order you adopt:—1, is *Centaurea cyanus* (Garden Blue-bottle). 2, *Linaria purpurea* (Purple Toad-flax). 3, *Achillea ptarmica pleno* (Double-flowered Sneezewort). 4, *Lamium maculatum* (Spotted Archangel, or Dead Nettle). 5, *Stenactis speciosa* (Shewy Stenactis). 6, is a syngenesious plant, but not in a condition to enable us to name it.

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WEEKLY CALENDAR.

M D	W D	OCTOBER 11—17, 1849.	Weather near London in 1848.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
11	Th	Old Michaelmas Day. Ash-leaves fall.	B. 29.9—29.7. T. 60°—35°. R.	19 a. 6	15 a. 5	0 27	25	13 13	284
12	F	Honeysuckle-leaves fall. [fall.	B. 29.9—29.9. T. 56°—38°. R. .01	21	12	1 39	26	13 28	285
13	S	Trans. K. Edward Conf. Aspen-leaves	B. 30.0—30.0. T. 58°—44°. R. .02	23	10	2 51	27	13 42	286
14	Sun	19 Sun. aft. Trin. Swallow last seen.	B. 30.0—30.0. T. 54°—40°. R. .14	24	8	4 4	28	13 56	287
15	M	Lady-bird hybernates.	B. 29.8—29.7. T. 52°—41°. R. .21	26	6	5 14	29	14 9	288
16	Tu	Martin last seen.	B. 29.7—29.6. T. 54°—44°. R. .04	28	4	sets	●	14 22	289
17	W	Etheldreda. Hazel-leaves fall.	B. 29.9—29.8. T. 49°—33°. R. .02	29	1	6 a. 1	1	14 34	290

Translation of King Edward the Confessor.—This day commemorates the removal of the Anglo-Saxon king's remains from the Abbey at Westminster, which he had built himself, to the more splendid shrine erected to his honour by Henry 3rd in the still more splendid Abbey that is yet one of the best ornaments of London.

Etheldreda, or Adelfrida, was daughter of Annas, king of the East Angles, and born at Ixning, in Suffolk, about the year 630. She was canonized for her chastity, and was popularly known as *Saint Audry*. At St. Audry's fair, held at Ely, much shewy lace was formerly sold, and *Saint Audry's lace* soon became proverbial, and by degrees corrupted into our now common word *tawdry*.

Meteorology of the Week.—During the last twenty-two years the average highest and lowest temperature occurring from the 11th to the 17th of October near London has been 60.2° and 43.6°. The highest temperature was 72°, and the lowest 29°. The greatest quantity of rain falling on any one of those days was 1.04 inch; and, in the twenty-two years, of these days 67 have been rainy and 87 have been fine. In our last Number we warned our readers against concluding that the average amount of rain falling in Britain was even nearly the same in every district; and as this is rather an important point for the gardener to be well acquainted with, on account of its influence over out-door gardening, we will give a tabular view of the average quantity in inches of rain which annually falls in various places.

Inches.	
86	Esthwaite Lodge, Lancashire
85	Coniston, Lancashire.
75	Esthwaite Lake.
67	Keswick.
61	Cameron, Fifeshire.
60	Haslington, Lancashire.
56	Kendal.
55	Allenheads, Northumberland.
54	Whitehaven.
52	Garsdale, Yorkshire.
50	Stone Easton, near Wells.
49	Castle Toward, N. B.
48	Milbury, Oxfordshire.
46	Plymouth.
44	Corbeth Guthrie, Stirlingshire.
42	Sorn, Ayrshire.
41	Townley, Lancashire; Ludguan, Cornwall.
40	Glasgow.
39	Lancashire, Greenock, Catrine.
38	Alford, Aberdeenshire.
37	Selbourne, Dover.
36	Manchester.
34	Liverpool, Applegarth, Swansea.
32	Cheltenham, Chichester, Kinfauns Castle.
31	Minehead, Sheffield, Abbey St. Bathans.
30	Carlisle; Pool Cottage, near Hereford.
29	Bristol, Bridgewater, Monmouth.
27	Hereford, Chatsworth, Derby, Gosport, Ferraby, Barrowby.
26	Fifield, Edinburgh, Birmingham.
25	Norwich, Bedford, Horncastle, Ware, Kimbolton, Brandsby, North Shields, Elgin, N. B.
24	Lyndon, Thirsk, Inveresk, Ackworth.
23	Aberdeen, Oundle, High Wycomb.
22	York, South Lambeth.
21	Widdrington, Northumberland.
20	London, Cambridge, Aylesbury.
19	Upminster, Essex.

Natural Phenomena Indicative of Weather. *The Ass.*—If this animal shakes and moves its ears, and brays more often, walks more slowly, and rubs itself against walls, &c., more frequently than usual, it is an indication that rain is approaching, and particularly showers. Mr. Forster says, "I have noticed that in showery weather a donkey confined in a yard near the house has brayed before every shower, and generally some minutes before the rain has fallen, as if some change of electrical influence irritated him. Whatever this electric change in the air may be, it seems to be the same that causes in other animals a similar inclination to cry out—making the peacock scream, the pintado or Guinea-fowl call 'come-back,' and which creates a variety of prognostic motions in other animals. It also creates pain in old wounds, decayed teeth, and fractured bones. An expressive adage says,

When the ass begins to bray,
Be sure we shall have rain that day.

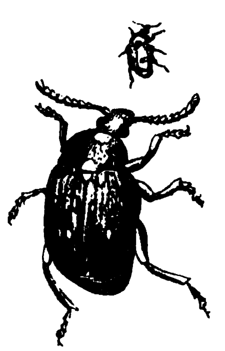
I have repeatedly been able to give my hay-makers useful admonitions, founded solely on the braying of the ass. Thus, the proverb says truly,

'Tis time to cock your hay and corn
When the old donkey blows his horn."

RANGE OF BAROMETER—RAIN IN INCHES.

Oct.		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
11	B.	29.596 29.441	30.363 30.282	29.217 29.080	29.741 29.623	29.851 29.399	29.753 29.592	29.846 29.889	29.927 29.793
	R.	0.34	—	0.14	—	0.09	0.26	0.03	—
12	B.	29.596 29.202	30.286 30.244	29.537 29.090	29.721 29.540	30.213 30.083	29.531 29.405	29.886 29.844	29.975 29.928
	R.	0.24	—	0.09	0.03	—	0.07	—	0.01
13	B.	29.973 29.859	30.258 30.220	29.758 29.598	29.409 29.217	30.419 30.282	29.882 29.803	29.919 29.793	30.041 30.010
	R.	0.04	—	—	0.33	—	0.01	—	0.02
14	B.	29.821 29.698	30.209 30.204	29.771 29.740	29.322 28.987	30.435 30.304	29.501 28.992	29.864 29.739	30.046 30.005
	R.	0.02	—	—	0.42	—	0.50	0.01	0.14
15	B.	29.799 29.492	30.268 30.233	29.697 29.649	29.018 28.940	30.242 30.030	29.081 28.934	29.865 29.695	29.815 29.755
	R.	0.50	—	—	1.04	0.01	0.69	0.01	0.21
16	B.	29.520 29.349	30.235 30.171	29.682 29.621	29.096 28.940	30.196 30.099	29.268 29.189	29.960 29.944	29.749 29.697
	R.	0.04	—	0.52	0.02	—	0.40	0.01	0.04
17	B.	29.519 29.409	30.045 29.664	29.377 29.250	29.450 29.232	30.126 30.031	29.470 29.241	29.986 29.843	29.044 29.808
	R.	0.01	—	0.06	—	—	0.18	0.01	0.02

Insects.—Every one who is acquainted with the seeds of the pea and the bean must have noticed that in many of them were small round holes, and these occasionally are so numerous as to spoil the sample, and, indeed, render the seeds totally valueless for sowing; for not one of those thus pierced but would either produce a weak unhealthy plant or not vegetate at all. Those holes in the "worm-eaten" peas and beans are made by a small beetle (*Bruchus granarius*) produced from a grub or caterpillar which has eaten away the vital parts of the seed; and when it has passed through the chrysalis state, and given birth to this beetle, the latter makes the hole in order to escape into the open air, there to perpetrate more mischief upon the growing crops. The body of the beetle is a dull brown, but the elytræ, or wing covers, are black, dotted with white, but scarcely perceptibly so, unless magnified, as in our drawing. Naturally it is the size of the smaller figure; that is, scarcely two lines long. The antennæ are eleven-jointed, black, and thinnest near the head, where they are also tinged with red. The head droops, the eyes are prominent, the fore-legs are rusty-coloured. This little beetle may be found upon various flowers during seven months of the year. In February it may be found on the furze blossom, in June upon the white-thorn, and in July and August upon the spiræa and rhubarb flowers. The female pierces through the pod of the pea and bean whilst very young, and often deposits an egg in each seed. Probably, the best mode of destroying this insect would be to subject the seed, as soon as harvested, for some hours, until thoroughly heated, to a temperature of 150°. This, we think, would kill the grubs without injuring the seed.



So many applications are now made to us for instructions how to manage the removal of large shrubs, which the owners wish to take from some part of their garden to other more desirable spots, that we will give an answer to one of the applicants thus prominently, and our answer shall be sufficiently explicit to serve as a guide to others who wish for information relative to similar transplantings. The inquirer to whom we are about to reply specially, writes thus:—"F. C. will feel much obliged for any information about moving a fine standard tree of the *Magnolia purpurea*, which is at present in a place where it cannot be seen, and where the soil is quite worn out. The tree is more than five feet high, but has only room on one side to spread to the ground. F. C. wishes to remove it, if it can be done, to a bed by itself, with some good bog earth, and where it can have plenty of room." There will be no difficulty in removing this Magnolia purpurea if the planter takes time to get up the roots without cutting them much. Let the bog-earth bed be first prepared; cut out a circular trench round the plant, and three feet from the stem, with a sharp spade, and let the trench be 18 or 20 inches deep; then, with a three-pronged fork, loosen down the edges of the ball of earth round the roots as deep as the trench, and throw out this loose earth with the spade; proceed to loosen another portion, and throw that out of the trench also; continue in this way until the stem is nearly reached, taking care of all the roots as they are disengaged from the soil by tying them in bundles, and folding them back, if possible, towards the stem. If any tap-roots are grown down below the bottom of the trench, trace them out a little deeper, and then cut them with a knife. If a small portion of the earth will adhere round the stem, all the better, but it is not essential to success. If the new bed is recently made, tread it firmly and evenly where the tree is to be planted, and spread out the roots flatly on the surface, and drive down a stout stake by the side of the stem to tie it to. Then cover the roots gently, and with a rose watering-pot pour a few potsful of water over the roots as they are being covered. The water will wash the finer particles of earth into all the cavities; and *on no account* let the plant be shaken "to let the soil in among the roots!" as old gardeners were accustomed to justify the treatment: it is an obsolete and mistaken practice which has killed thousands of plants. The roots as they are separated from the soil, and tied in bundles as above directed, should be covered over immediately with wetted straw, or other damp material; for a very important point in all transplanting, where to avoid any important check to the plant's growth is desirable, is to keep its roots from having even their surface dry. With reference to shaking the newly-planted shrub, if the earth has been properly watered as we have directed, it will be sufficiently washed in among the roots, and the shaking only either doubles up the young fibres, or creates hollows about them which it is so important to prevent, that every precaution must be used to prevent the shrub from being wind-waved. To a shrub four or more feet high, there ought to be three stakes placed at opposite sides, thrust very firmly into the ground, and their ends meeting together so as to clasp the stem of the shrub at rather above half its height from the ground.

The facts detailed by us last week relative to the influence of heat upon seeds, and the necessity for its presence to induce their germination, lead us, next, to the very important inquiry whether the soil has any influence over the temperature occurring to the seed, and to the roots of plants placed beneath its surface. The researches of M. Schluber and of others answer this query in the affirmative. This distinguished German chemist found that when the temperature of the upper surface of the earth was 77° in the shade, various soils in a wet and dry state, exposed to the sun from eleven to three, in vessels four inches square and half an inch deep, attained the temperatures shewn in this table.

	Wet.	Dry.
Siliceous Sand, bright yellowish gray	99.1°	112.6°
Calcareous Sand, whitish gray	99.3	112.1
Gypsum, bright white gray	97.3	110.5
Sandy Clay, yellowish	98.2	111.4
Loamy Clay, yellowish	99.1	112.1
Stiff Clay, or Brick Earth, yellowish gray	99.3	112.3
Fine bluish gray Clay	99.5	113.0
Lime, white	96.1	109.4
Magnesia, pure white	95.2	108.6
Garden Mould, blackish gray	99.5	113.5
Arable Soil, gray	97.7	111.7
Slaty Marl, brownish red	101.8	115.3

The results of M. Schluber's experiments demonstrate that which our knowledge of the laws of heat would have induced us to pre-suppose; namely, that light coloured earths, by reason of their reflecting most rays of heat, are warmed much more slowly than dark coloured earths. It was this conclusion which induced us, some years now past, to try the effect of sprinkling coal-ashes over rows of autumn-sown peas. The peas invariably appeared above the soil some days before those in rows not similarly treated. This acceleration of vegetation continued equally marked throughout their growth, and is further explained by other experiments of M. Schluber, which testify that those soils in the above table which absorbed the heat most readily, retained it most tenaciously, and consequently were longest cooling. Magnesia cooled in one hour and twenty minutes as much as the garden mould did in two hours and sixteen minutes, and the slaty marl in three hours and twenty-six minutes.

From a long continued series of experiments, we are now able to state positively, that in light, well-drained soils, after exposure to frosts of many days' continuance, during which the thermometer in the open air by day did not rise above 39°, and at night ranged between 31° and 25°, another thermometer at six inches below the surface never fell below 33°, and at twelve inches from the surface never was lower than 36°. In clayey or wet soils the freezing will penetrate to seven inches in severe winters. In every instance we speak of the soil dug level; if thrown up into ridges, the cold will penetrate much further into them. These facts demonstrate how small is the danger of tubers and bulbs being frozen if properly planted in a well-drained soil at six inches below its surface; and at that depth, even if frozen, their thawing is so gradual that no injury arises. Upon this subject, however, we may have some other observations to offer in connexion with the roots of plants.

The fact that the earth, in regions not eternally ice-bound, never is reduced in temperature, at a few inches from the surface, so low as the exterior air in winter, nor is elevated at a similar depth to an equal degree of warmth in summer, suggests the necessity for more attention to the temperature of the soil in our horticultural houses than it has hitherto obtained. Attention is more awakened to it now than formerly, and by *bottom-heat* our gardeners now intend something more than a mass of fermenting matter for forcing cucumbers or pine-apples.

It is quite certain that every plant, when growing in a favourite soil in its native climate, has its roots growing in the temperature which is best accordant with that in which its branches are delighting. Under no circumstances, if the plant is flourishing, will the temperature in summer, at twelve inches from the surface, be found to be less than 2°, nor more than 5° *lower* than the average temperature of the atmosphere; and in winter, that temperature at the same depth will be found to range similarly *above* the atmospheric temperature. There is no doubt that in tropical climates the bare exposed soil becomes heated, for a few inches in depth, to a degree higher than that of the air incumbent upon it. But this is not the case about the roots of plants; for their foliage, and the herbage naturally clothing the soil, preserve this from such a pernicious elevation of temperature. That such an excessive elevation is injurious is known to every observer of plants, whether the plants are growing in the tropics or in a stove. The roots are stimulated to imbibe moisture faster than the foliage can digest sufficiently the sap thus forced to them, and that foliage is expanded wider and more weakly in the vain effort to keep pace with the supply. This is only one among many instances of that property, so wisely given to organised beings by their Creator, of adapting themselves to circumstances; and it is only when the vicissitudes of those circumstances are too violent, or too long continued, that they fail in their effort at conformity.

THE FRUIT-GARDEN.

The storms peculiar to the season begin to remind us that another winter approaches with rapid strides, and that the necessity for a prudent forecast becomes daily more manifest; every howling crevice, indeed, as we sit by the fire-side, seems a monitor, and appears to say, "Are you prepared for a period of gloom and frost? When earth with its treasures are bound up in the icy chains of the north, will you be able to look back with pleasure on your past labours, and to feel that you have omitted nothing which, as far as within your reach, might add to the comforts of this usually inauspicious season?" Well is it with those of a provident character who can reflect and mentally reply that they have anticipated the evil day; and well, indeed, is it for the cottage children who possess such a father.

Fruit-gathering.—We will now advert to the winding up of the fruit-gathering; little of the ripening process will be facilitated out-doors after this period. To be sure, a few of our later fruits will still hang with tenacity to the tree, especially in our northern counties. Amongst the peaches, the Late Admirable, the Bourdine, and the Catherine, may still be found in ungenial situations. Amongst the nectarines, such as the Late Newington; among plums, the Imperatrice, the Ickworth plum, and Coe's Late Red; and, amongst pears, the Beurré rance, the Ne plus meuris, &c., &c. As for apples, few of any merit adhere to the tree after this period; we may, therefore, fairly presume that this useful fruit is all housed. We need scarcely point to the propriety of removing any leaves, coarse shoots, or spray which may shade the fruit; all such precautions will be necessary. We would, however, by no means risk our late pears out many days at this late period, although they may not bend to the ordinary test of ripe fruit—the parting easily from the tree; yet the rule must be set aside for fear of the injurious effects of frosts, which are apt to set in betimes in some seasons; indeed, no fruit may be considered safe after the middle of October.

Whilst on the subject of lateness, we may remark that, having recently made a tour in some parts of Derbyshire, we were surprised to find them so very backward. At a rectory garden the other day, within eight miles of Chesterfield, we saw Golden Drop plums still green on a south wall: this was on the 25th of September. Whilst about the same period we found a brown Ischia fig, in a court-yard at Derby, covered with a splendid crop; many perfectly ripe figs having been gathered from it. There is a fire-place, however, in the latter case behind. The damsons, nevertheless, are as forward as they are in Cheshire; and this seemed rather astonishing, until we learned that the Golden Drops had been planted in a prepared border, which had been, as too many borders are, a work of supererogation—too deep by far, and sunk level with the walks over a subsoil of the most tenacious clay. The damsons are only what is termed "stuck in" by the country folk; no petting *here.*

It is lamentable to see, in so fine a country as Derbyshire, such a scarcity of apple trees, seeing that their soil in many parts is so well adapted for them.

But the cottagers possess little or no garden-ground, and from not being used to culture of this sort, we were told that they have no desire for any. One man, we were informed, who had a quarter of an acre of good soil placed in his hands for garden purposes, immediately sowed the whole with oats, to save farther trouble! Those who do cultivate a little, seem to pay little regard to fruit culture. But the wages are high there, and this seems to lessen the desire for a piece of ground of their own. About thirteen shillings a week is given to strong labourers; whilst in such counties as Dorset, Buckinghamshire, and other localities far removed from commercial or manufacturing affairs, wages are not more than eight or nine shillings. We, therefore, fear that high wages are not conducive to the extension of fruit culture.

Those who have recently gathered much fruit must now be on the alert, to see that no undue fermentation takes place, and that the condensed moisture does not adhere to the sides of the room. This must be dissipated by a judicious ventilation, which also will tend to prevent or arrest the growth of those dark fungi, which, after establishing themselves on the skin of the apple, cause such injuries as must shorten the keeping period of the fruit.

Where the apples are thrown down in large heaps in granaries or other store rooms, they should be examined occasionally; and if any suspicious appearances exist, the fruit should be picked over, and layers of well dried new straw occasionally introduced. This will serve to prevent the accumulation of any injurious amount of heat, and the extension of rot, which is sure to occur amongst the soundest of fruit more or less.

If any one desires to pit apples after the manner of potatoes, a dry, sound, and somewhat elevated site should be selected, and one where water can never rest. They should have a good bed of straw beneath them, and be well surrounded by the same; and it would be well to introduce kiln-dried straw in alternate layers all through the mass. The whole should be so topped up that water could by no possibility enter.

The superior pears will, of course, be placed in single layers on shelves, and here they will require little attention, except to watch their ripening; for although certain periods are assigned to each as a sort of guide, their ripening will vary much with the seasons. We have tasted very good Beurré d'Arembergs in the first week of March, but we have never been able to produce them fit for the table after the middle of February. On the contrary, they are generally in the highest perfection about the middle of December. The Easter beurré, we believe, has been had in perfection in some situations in March; in general they will become mealy and almost insipid before Christmas. The Pass Colmar we have had good through February; it is more generally in its prime, however, in the course of December.

All this points to the watchfulness necessary in the fruit room, without which the amateur may be taken by surprise, and disappointment will ensue.

Pears do not require so much ventilation as apples; they do not perspire quite so much; nevertheless, we are not aware that it does any harm beyond hurrying them out of season slightly; and it is hardly worth the while of those on a limited scale to attempt to keep them separate. We would advise that they be successively introduced to a warm room if possible about one week before wanted for use. They must, however, be kept in the dark, or rather covered from the too severe action of a fire-dried atmosphere; such is apt to shrivel them and to rob them too much of their juices. The temperature of the room should range from 55° to 65°; a greater heat would be prejudicial; a state of air, in fact, similar to fine weather in the end of September.

Those who possess fruit of the Service tree should place them on shelves in a dry room, where they will keep a good while and gradually become mellow. They should be gathered towards the end of October, whether quite ripe or not, for they will not endure much frost. R. Errington.

THE FLOWER-GARDEN.

Young Stock.—"How shall I keep my cuttings of verbenas, petunias, calceolarias, &c., having neither greenhouse nor pit?" is a question that has been asked of us lately by many. Some have supposed that such cuttings could be kept dry in an upper room; others that they might be cut down like pelargoniums, and the bottoms would keep over the winter in a dry state; while a third party inquired if they could be kept in a dark room. One short answer will settle the whole. Cuttings, or newly-rooted young plants, cannot be kept by any of these means. They must have light, air, and warmth, all the winter through, and be regularly watered, or, at least, the soil must not be allowed to get quite dry. A much better plan, therefore, would be to keep as many old plants as possible, and make cuttings in the spring, and give up autumn cuttings altogether. *Calceolarias* may be potted easily enough from the borders, and it may be done even now; and so with *verbenas* also, but they are very difficult to establish at first, and should not be put under cover for a fortnight or three weeks after potting from the borders so late in the season. Old *petunias* are good for nothing, or next to it, and there is no certainty in their seeds coming true; but one nice plant kept in a pot from last summer would easily live in a window, and, with the help of a cucumber-bed, would produce as many cuttings early in the spring as would make a good bed. Gardeners keep these cuttings in what they call store pots all the winter; that is, pots filled with numbers of newly rooted cuttings, and if they are late, or get mildewed, as verbenas often do in winter, they put them in heat in January or February to force, and make fresh cuttings from the young tops, and then throw away the diseased parent plant; but sulphur will keep down the mildew. I have always found that cuttings keep better if a slight covering of sand is on the top of the pot in winter, but this might deceive strangers, as the sand is soon dry after watering, so that one might think the pots wanted water almost every day, but the truth is they do not want water nearly so often as they would without the sand covering, for as soon as the sand is dry it prevents evaporation from the soil, and so the pots need not be watered so often.

I know a farmer's wife who is very clever in keeping plants of all ages through the winter, and she puts a layer of sand over all her pots late in the autumn. I know that she has lots of cuttings now that are hardly rooted, and she says she has no fears at all about them; but she has a good room and windows for them, and generally there is a good roaring wood fire in the room, and no insect dares come near them, as pipes and cigars are often in requisition.

Bedding Plants.—I make more beds than her Majesty's housemaids, palace-maids, and all, and I put all sorts of fine things in them, they say—more so, indeed, than most gardeners. However, I sometimes bed plants that are not very fine, and some of which the less said about them the better for their reputation. At all events I can give lists of all the bedding-out plants, but I must do it in my own way, and at my leisure: there is no great hurry now, or for the next three months, as this is no time to introduce strangers. Let us first have the winter over before we buy in little delicate things for the flower garden; but this is the best time in the year to buy almost all other kinds of plants. This will be a general answer to those who have written for such lists. The only list that is pressing at present is that of a few choice things to make up a gay flower garden in April and May—two months which may be said to be out of the flower-garden calendar, if one were to judge by the haggard appearance of nine-tenths of our best English gardens at that time. In short, the thing is not fashionable. The great people go to London at that time to see the Queen and each other, and their gardeners then prepare their beds for the summer and autumn display; so that May, at least, is a blank period in the flower-garden with them, and honest people who live quietly at home think it is time enough to be gay when the Priory people, or the Hall or Castle gardens over the way, are so. There is no time in the year, however, when it is easier and cheaper to have a gay flower-garden than in May, but it is too late now to prepare for this thoroughly, as the main force must be had from annuals sown from the middle of August to the end of September, and the best list of these for the purpose is given at page 278 of our last volume. After the annuals are off, the half-hardy things take their place, as only a very few annuals are fit for summer gardening. It is only patchwork to use any of them that will not flower from June to October.

Hardy Bulbs, of which *hyacinths* are the chief, are very numerous in varieties, and make gay spring flowers from April to the end of May. We flower about a thousand hyacinths here in the flower beds, and other bulbs in proportion, and yet the family go early to London for the gay season. Good hyacinths, if well taken care of, will last no one knows how long. I know some that have been grown in the same garden since 1822, and they look and bloom just as well as they did at first. It is impossible, however, to keep many of the sorts for more than a few seasons, owing to their being of a tender constitution. Others never ripen properly in strong rich land, and of course will soon wear out. Accidents will have a share of them now and then, and rats always, when they can get at them; so that, between one thing and another, the most careful must go to shop for some occasionally. It is never a good plan to let down the "stock" of any thing; a few mixed hyacinths, therefore, must be bought in every season when a fine bloom is expected; and when taken in large quantities, and in mixed samples, they are nearly as cheap as potatoes. Deep sandy loam is what they prosper in for years: it should be worked twenty inches or two feet deep, and not a particle of animal manure added to it, unless in the shape of liquid manure, and of that, if the season is dry at the time they are pushing up their flower-stalks, they take large quantities; decayed leaf-mould is also good for them, and very decayed cow-dung, placed eighteen inches below the bulbs, will give stronger bloom for a season or two, but in our climate the bulbs soon die off if rich dung is used for them.

Last November I potted about 600 hyacinths in five-inch pots (60s), in very light sandy loam, for some of the best beds near the mansion. The beds were levelled, and the pots set in rows six inches from centre to centre, and ten inches between the rows; the spaces between the pots were filled up with leaf-mould, and four inches of it all over the pots: there was neither shelter nor shade given, and I never saw a finer bloom. In May, when the summer plants were ready for these beds, the hyacinths were removed, and the pots plunged in light compost in the reserve ground, and kept well watered until the leaves withered. The strongest bulbs of these will be potted again soon for the same purpose, with a fresh lot to make up the full number, and the weakest, with any doubtful ones, will be planted in light borders, and full five inches deep. It is a good plan to plant these bulbs as deep as that, or even deeper, if the bed is deep in proportion.

Early Tulips.—The varieties of these are endless, beginning with the single and double *Van Thol*, which with me begins to open about the 10th of April in the open beds, and others follow on in succession till the middle of May. In 1846 I planted 42 kinds of these early tulips, in order to pick out such as would bed well together, and of one colour, for that is the only way to give effect in a flower bed. I have all my remarks now before me, and shall note down a few, which any one may rely on if he gets the true bulbs. There were three most beautiful yellow ones of the same size, and came into bloom on the 10th and 12th of April. A dozen of each in a bed near the house would make a fine variety. Their names are *Canary Bird*, *Vermillion Brilliant*, and *Prince du Ligne*. They would make a nice edging to a mixed bed of early tulips. The yellow shades are different; therefore, if planted in a row as an edging, they would look better if two of a sort be not planted together. For a red bed I marked *Purpur Kroon* (that is, Purple Crown), a fine purplish red, and double; *Claramond*, rosy red; and *Areste*, a reddish yellow. These three correspond in height, in their time of flowering, and agreed better than one would think from the description of their colour. *Royal Standard*, single, red and white, is a fine one for a bed by itself; and so are *Golden Standard*, single, red and yellow; *Duc d' Nemours*, red and yellow; and *Aimable rouge*, dwarf red, fine. The four latest were *Maria d' Medicis*, yellow and rose; *Chineuse*, cherry and red; *Pæony*, rose; and *Cato*, reddish. ***Rex rubrum*** is the best of the early double tulips for a bed, a large and very dark red flower; *Marriage de ma Fille*, a variegated one, is the next best; and nearly equal to it is the *Turnesol*, orange and yellow: these three would make a fine bed of themselves. One singular feature in these early tulips is that there is hardly a good white flower amongst them all: *La Candeur* is but a dirty greenish white, and the so called *White Pottebakker* is not much better. There is a white Van Thol, but I have not yet seen it.

Now, these notices are chiefly intended for those who have some knowledge of the subject. For such as know nothing of such things, by far the best way is to buy the cheapest mixtures that one can meet with, plant them altogether in a bed or border, and make notes of their height, colour, and time of flowering, so as to have them better arranged next time; and, lastly, there are three or four called *Parrot tulips*, with great loppy flowers, but they make a variety in the spring. From a penny to three pence each you may buy all these, but taking them by the gross they seldom cost more than ten shillings the hundred.

The Narcissus Tribes furnish a large assortment of spring flowering bulbs. Those called *Polyanthus narcissus* are very numerous, and amongst the best for rows, patches, or beds, is *Grand Monarque*, one of the best whites, and *Soleil d' Or*, the best yellow. But their names are endless, and any nurseryman can furnish a dozen or two of good named sorts of narcissus.

Then come the single and double Jonquils, a smallish kind of narcissus, with yellow flowers and rush-like leaves; and when once you have a patch or two of these they increase very fast.

The old Crown Imperials, which one may see in every cottage garden all over the country, have run into ten or a dozen varieties, and all of them are useful for borders in the spring; and then the *Turban ranunculus*—what is more beautiful than a bed or an edging of the scarlet Turban? Moreover, there is a yellow and a black Turban, which are not quite so bright as the scarlet ones. If these are set a couple of inches deep it will do very well, but there should be two plantings of them, one in November and one in February. This will prolong their blooming season in the spring.

The large double scarlet *anemones* may also have the same treatment; and where is there a finer spring flowering plant? Whether in single rows, along the side of a border, or only in patches here and there, they make a very showy appearance, and a full bed of them near the windows is gayer than any other.

A south border of deep sandy loam under the windows and on each side of the door would be the best place for the *Belladonna amaryllis;* and if they are planted *now*, and placed full six inches below the surface, and allowed to take their own way for years, they would bloom in the autumn, after the first year or two, for a generation; and they are more than beautiful, for I took a party of young ladies who read The Cottage Gardener to see those in bloom here the other day, and they said they were "lovely," and indeed so they were, and so were the young ladies too, for they are "so fond of flowers."

I must not say what the prices of these bulbs are, or where they are to be bought, farther than that they are all cheap enough for any one, and that any nurseryman can get them if he likes for a customer, supposing he does not already possess them. We are often asked where to buy so-and-so, but it would be a great injustice if any public writer were to recommend one tradesman more than another. The English are renowned all over the world for fair play, and let us keep up our credit and be thankful.

D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

Cleanliness.—It has been said that "cleanliness is akin to godliness." We are no admirers of the practice of ever and anon introducing proverbs and the sayings of great men, as *clinchers*, to a statement or argument, accompanied with a certain expression, as much as to say, "Who can call in question my opinions now?" Yet, nevertheless, distinguishing between the abuse and the use, we confess to a reverence for many of those pithy sentences—the concentrated wisdom of ages. True, some of them have found acceptance with, and thus moulded the action of, masses, that would be found erroneous when examined in the light of a high-toned morality, or even when tested by those principles which regulate our true self-interest in a social point of view. But if evil has been done by a few of those pithy sentences, it has been more than counterbalanced by the benefits resulting from those true intellectual and moral gems, which, dropping upon the listless ear like the dewdrop on the flower, have thus succeeded, without exciting either opposition or resentment, in arousing thought, and then been followed with what we are told is likely to accompany "words in season fitly spoken." Among these pearls we class the statement with which we have commenced, believing that cleanliness is as necessary to the healthy and happy exercise of the bodily powers, as godliness is requisite for the expanding, maturing, and purifying of the moral and intellectual natures. Nay, that where physical cleanliness does not exist, the mind being ever acted upon by external circumstances, is in danger of becoming dusty, cobwebbed, and polluted, and thus unfitted for receiving those lucid impressions of beauty and purity in the realisation of which our chief rational happiness consists.

But why introduce such observations at all in a work devoted to cottage gardening? There are many reasons; we can only glance at a few. This is the first work that has attempted, as a periodical, to teach gardening at such a price as to come within the reach of the masses, and in such a manner as to make people better as well as wiser. Great incompetencies may exist for the task, but if I mistake not this is the object aimed at. Many purchase the work because they find it to be for their interest and pleasure to do so. Many subscribe that thus they may have it in their power the better to assist their humbler brethren. The latter would be greatly increased in their numbers did they at once perceive that good gardening and a love of the beautiful in flowers were powerful antagonists to untidiness and filth. Self-interest will force this upon men's attention, if the voice of benevolence be hushed. The contagious disease—sweeping off its victims, the spawny brood of dirt and putridity—will not be confined to the spots where it originates. Society is a whole. A part, however anxious it may be, *cannot* so isolate itself as to be beyond the influence of the rest. The smallest spring in that huge social machine will exert its power for good or ill. No man can live for himself. Neglect of social duty is crime, and that will be followed by its appropriate punishment. Whether, then, is the better—cheap benevolent prevention, or costly self-interested cure?

All are agreed that cleanliness is the great enemy of the loathsome in disease. Hundreds of instances present themselves as proof that good and clean gardening, and tidiness in the dwelling, and cleanliness in the person, just act and react upon each other. Many fellow cottagers have told me that they never read—never cared about thinking—never, in the genuine Mrs. McClarty style, "fashed" themselves about either their persons or their clothing until they were led into a love of gardening. Formerly, the pipe and the tankard constituted their elysium—now, plants and books are essential to their happiness. Passing sometime ago a happy group who thus had been changed into comfort from wretchedness, I accosted the head of the family, who was vigorously plying a short-pronged instrument in the shape of a hoe. "Well, neighbour, loosening the weeds, eh?" "Oh, no," says he in reply, "can't afford to have weeds often; I am trying to let the air in, and keep the dry heat out in this parching weather. My good industrious neighbour, Mr. Love-old-ways, has been toiling himself to death in surface watering every night, but you see, sir, my pronged hoe beats his water-can hollow." In the window were a few plants fit for a lady's parlour, and everything within doors clean and comfortable. Passing on, we came to a cottage with rather too many plants in the window; the colour of the leaves scarcely discernible, so coated with dust and insects. Need we progress farther to find traces of tardiness and neglect?

"Ah, now," says Mr. Quibble, "I have fairly caught you tripping, Mr. F——. Surely no one would put these plants in their window that did not love them; and you have as much as said that where that love existed, untidiness would be a stranger." No, not quite so much as that. Many, very many, put plants in their window, not because they really love them, but because they wish to be thought as genteel and grand as their neighbours. The flower in a pot is, in such circumstances, merely viewed as an emblem of having gained a certain position in society. Let the fashion only change, and they would at once change with it. Again, many who love flowers allow their plants to get dirty and dusty because they are ignorant how to treat them. The initiated are too apt to imagine that the effect produced upon vegetation when dusty by a good shower of rain would teach the possessors of plants a lesson never to be forgotten. But they forget that they gained the knowledge they possess not at once, but by degrees. They forget that great truths and great principles are only simple *after* they are known. Many labourers will sit carelessly for hours in wet clothing, never dreaming that they are laying the foundation for rheumatism and premature old age. Others will be as careless of changing their body clothing as a Turk, and, far from imitating him in the use of the water bath, will entertain as great an aversion to water as some of our northern friends, who looked upon its use, inside or outside, as the enemy of a sound constitution in the one case, and the foe of a blooming complexion in the other. And so it is with many of the lovers of plants; they wonder how they look so sickly; the leaves may be covered with dust, but they do not think that is the cause. They may be aware of the importance of unobstructed perspiration from the skin, and free respiration by means of the lungs, so far as their own health is concerned, but they have never been led to think that the leaves of plants constitute alike organs of respiration and perspiration, digestion and nutrition, inspiring and respiring gases and air, and absorbing and exhaling aqueous vapour. Plants would be better attended to, and gardening better done, could it be impressed upon the public mind that in many respects the vegetable resembled the animal. Hence to expect health in plants, with their leaves encrusted with dust, is just as wise as to expect health in your own body, with your skin varnished to prevent perspiration; or, your lungs so treated as to keep them, and the blood passing through them, from atmospheric influence. The leaf of a plant is amply supplied with orifices for vapour, and stomates, or openings for air. So small are they that thousands exist in an inch. In many cases they exist on both sides of the leaf; in general, they are chiefly found on the under side, as plates of metal applied there have condensed vapour when none was condensed upon the upper side. In aquatic plants, whose leaves rest on the water, the orifices for transpiration exist only on the upper surface. The difference of plants in this respect, and the extreme variety in the skin or epidermis of the leaves, is a study well worthy the attention of the amateur. The more examined, it will the more be found that in wisdom all were formed. Even hairs on the leaves and stems are considered to be both absorbents and protectors: they will often be found bending over the skin of the leaf during the day, and standing upright at night; even this cannot be done when clogged up with dust.

In alluding to these matters, all we wish at present to inculcate is, to keep the leaves and stems of your plants scrupulously clean; otherwise, we might have enforced the same advice by a lengthy reference to the beneficial effect of a healthy vegetation in purifying our atmosphere, and the wondrous reciprocal connexion existing between the vegetable and the animal—neither of them having the power to say to the other, "I have no need of thee!" the vegetable furnishing food to eat, and oxygen, or vital air to inhale, by the animal; while the animal, by its decomposition when dead, and by its excretions and the exhaling of carbonic acid gas when alive, furnishes nourishment to the vegetable.

Thus, plants with dusty leaves can neither be healthy themselves nor the means of promoting the health or the cheerfulness of their possessors. Would you experience something of the same pleasurable exhilaration of spirits, when, after a cloudy morning, the sun bursts in splendour upon the clean deep green foliage of the woodland, and thus excited you by the free liberation of oxygen or vital air that was thus accomplished?—then your plants must be clean, and the medium through which the sun reaches them clear and transparent. Resolve to neglect all this, then you had better discard your plants at once. Their neglected condition is not only a satire upon gardening, but furnishes to every passer-by, whether right or wrong, the means of passing an opinion upon the general state of your housekeeping. "Ah," says one, "this is all very well. I could manage my plants tolerably in summer, when they could stand upon the window-sill; and I can clean the pots now, which I suppose you consider indispensable. And it is an easy matter for my wealthy neighbours (some of whom, however, would be none the worse for a hint) to keep their plants nice, with the clean stages in their greenhouses and beautiful floors of their conservatories; but there, now, what am I to do, when my prized plants will soon be all indoors, to enable them to perspire and respire, or what we simple people would term sweat and breathe, when every time I sweep that large room, after the rompings of so many children, even when I damp it with leaves from the tea-pot, a quantity of dust is sure to settle upon them?" In reply: move the plants when you sweep the room, or, what will be sooner done, have a neat light cloth for covering them during the operation. If a little dust should, nevertheless, adhere, scatter it with a soft hair-brush, such as housemaids use; which, however, will chiefly be useful if you live in a smoky city. Then, as your plants will, nevertheless, get dingy, take them to the kitchen sink, or out of doors on a mild day; wet all the foliage either from a syringe or the rose of a waterpot, holding or placing the plant in such a position that the water cannot enter, and so deluge the soil in the pot; then wash the leaves with a sponge, and give a finishing dredging from the waterpot, and the aspect of your plants will amply repay you for the labour. After once you have shown them the way, the children will manage it all for you, and thus unconsciously they will be acquiring tastes that will accompany them to their benefit through life. There are many things that will now have finished their growth and plumped their buds that will not require this attention during the coming winter; but then, if possible, they should never be prominently introduced to notice in the sitting-room. By following the above simple method, I have seen plants kept in beautiful health, not for a month or two, but during the entire season, in smoky London; but then the *girleens* who had the charge of them loved their protegees, were always learning their nature, understood at a glance what they wanted, were liberal in sprinkling and rubbing the foliage when no water was wanted at the root, and in general did all this in the gossiping twilight hour, when scarcely anything else could be done. Worthy to be called relations these of the Aunt Harriet so immortalised in these pages! Would such tastes unfit them for the sterner duties of rearing little human plants, on which duties they have now entered? Would they be less capable of engaging in the "delightful task, to rear the tender thought—to teach the young idea how to shoot," &c.? Would you imitate their success? Then follow their example. R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

Routine Culture for October.—The days are now shortening fast, and the orchids will soon feel the want of light.

Water.—Great care is requisite now in the application of water, and of moisture in the air. Many of the *Dendrobiæ* ought by this time to have made their full growth; from such withhold water nearly altogether, and lessen the heat at the same time. Place them in the cool house (see next week's number); this will consolidate or ripen the pseudo-bulbs, and cause them to produce flowers abundantly. Any other tribes should be treated in a similar manner if their growth for this year is perfected. There will be, however, several that are still growing. To these supply a moderate portion of water, much less than during the summer months. Apply it to the compost in pots or baskets by means of a small spouted watering pot, without wetting the leaves or any part of the plants.

Those on logs should have a sprinkling of water on all fine mornings when there is any prospect of sunshine. On dull, wet days omit the syringing altogether; also on all days avoid, at this dull season of the year, the use of the syringe in the evening. We have seen many a healthy promising young shoot damped off by a too abundant application of water in the evening. There ought to be a degree of moisture in the air of the house where plants are growing at all times of the year, but that moisture ought to be considerably lessened in the autumn and winter months. The walls and walks may now be moistened only in the morning, unless, on rare occasions, when the sun shines clearly and brightly all the day. When that happens apply water to the walls, &c., early in the afternoon.

Shade may now be dispensed with entirely. The creepers, if any, should be shortened in very much, to allow the plants as much light as possible. They need it all now.

Air and Heat.—Whenever the temperature of the house rises to 70°, admit air to reduce it to 65°. Let this be the standard heat during the day to aim at until the end of the month. The night heat should not exceed 60° nor fall below 55°. If the last thing at night the house is left at the maximum heat, and in the morning it is found at the minimum heat, it will be quite correct. The grower may rest satisfied his plants are comfortable.

Potting.—We have often been asked the question, "When is the proper time to pot orchids, or to basket or fresh log them?" Our answer was, "Generally speaking the months of January, February, and March, are the proper times, but as there is no rule without exceptions, some orchids require potting at all seasons of the year. The beginner may know when to pot his plants by this observation:—If they are determined to grow, even now they must be potted. The only precaution necessary to observe will be to use the stuff you pot them in (for it can hardly be called soil) in a moderately dry state, and give no water excepting a sprinkling to settle the compost.

The operation of potting an orchid we shall describe, because many of our readers will not know how to perform it correctly. In the first place, have ready a quantity of broken pots or potsherds of several sizes; next, procure some good turfy peat, knock it into pieces with a heavy hammer, crushing the finer soil entirely out of it; then pass it through a fine sieve, and what remains in the sieve is the best stuff for orchids; it is light, open, and porous. Next, have some charcoal at hand broken into pieces no larger than a hen's egg, nor smaller than a hazel nut. Another article, and you will have all you need for pots and baskets: this is white bog moss or sphagnum, which should be partially chopped with a sharp hatchet, and the dust also sifted out of it. We have a great abhorrence for anything close or fine about orchids, excepting terrestrial ones. We will here explain that terrestrial orchids are those growing on the earth, whilst epiphytal orchids, or epiphytes, are those growing upon trees or logs of wood.

Having all in readiness, take your plant, turn it out of the pot carefully, be mindful of the roots, and bruise or injure them as little as possible. Perhaps some roots will be found adhering very firmly to the sides of the pot; to part them from which we have used a long thin-bladed knife, thrusting it carefully down between the root and the pot. In very bad cases we have found it necessary to break the pot, but this must be done very gently, or the very act of breaking may destroy the roots. The plant being cleared from the pot, shake away all the old compost; then examine the roots closely, and cut off all the dead ones. This is a convenient opportunity also to look after insects, especially the white scale, the most pernicious of all vermin to orchids (excepting, perhaps, the black thrip). With a brush clean them all off, and wash the whole plant with strong soap water. Your plant is now ready for potting. Choose a pot of the proper size; generally speaking orchids, to grow them well, take larger pots in proportion to their size than any other class of plants. Let your pots be perfectly clean both inside and out. Lay a large piece of potsherd over the hole at the bottom of the pot; then place some rather smaller pieces of the same, and over these the smallest ones. Altogether the pot ought to be three parts filled with this drainage. This point is of the utmost importance, for if the plants are not superlatively well drained they will not thrive long or satisfactorily. Over this drainage place a thin layer of charcoal, and then a layer of the turfy peat, mixing with it some broken pots and charcoal. Introduce the plant now, and spread the roots, if many, all over the surface of the compost, working it amongst them, gradually filling it in till the pot is full, and keeping the body of the plant well up; raise the compost up about two or three inches above the level of the edge of the pot in proportion to its width. A small pot need not have the plant above one inch raised, a middling plant two inches, and for the largest sized plant three inches will be sufficient. The whole of the plant, pseudo-bulbs and all, excepting the roots, ought to stand clear up above the compost. It will be loose and ready to tumble over if of such kinds as *Cattleyas* or *Dendrobiums*; to prevent which thrust into the compost some stout sticks, and tie each pseudo-bulb to each stick firmly. These will secure the plant, and give it a neat, tidy appearance.

We have thus described the method of potting an orchid, and this method will suit the greater number. For some others a different way and different compost, or article to grow in, is required, which we must defer describing till a further opportunity occurs, our space for this part of our subject being filled.

FLORISTS' FLOWERS.

Carnation and Picotee.—The weather still continues open and moderately fine, but as it cannot be expected to continue long, it is advisable to be prepared for the change. Frosty nights and cold wet days will soon injure these flowers; therefore, we advise their removal into winter quarters without any delay. The best situation for them is an open one facing the south. Place them in frames upon a stratum of rough coal-ashes, at least two inches thick. We suppose them to be in pairs in pots about five inches wide, and in perfect health, and it must be the great care of the florist (whether a dealer, an amateur, or a cottager) to keep them so. In removing them, do as we recommended for the auricula; examine the underside of each pot, kill all slugs there, destroy any worms that may appear, and leave the drainage open and in good order. Let the pots be clean washed, and stir the surface of the soil; then place them in the frames, near the glass, and give plenty of air. Draw off the lights on all fine days, and tilt them behind on wet rainy ones. With these points attended to properly, and on all occasions, the plants will do well through the winter, and flower well in the ensuing summer.

Tulip.—The season for planting these gay flowers is fast approaching, and the florist will do wisely to be preparing for it. If the instructions given in a late number have been acted upon and carried out, the bed will now be open; that is, the soil will be laid in ridges on each side of the bed, and a coating of very decayed cow-dung laid at the bottom. Let the soil now be levelled down into its place, leaving it about three inches above the walks. If the bed has not been edged with anything it may be done now. Dressed slate, about half an inch thick, six or eight inches wide, and as long as can be obtained conveniently, is by far the best edging for any kind of florists' flowers. We saw lately in the gardens at Tatton Park, in Cheshire, an edging of hard-burnt earthenware that was excellent, and would answer well if generally adopted. We should imagine any potter in the kingdom would be glad to make and burn them properly if requested to undertake such a job. When neither slate nor the above-named earthenware edging can be had, narrow edgings of wood will answer every purpose excepting that of lasting. Strong short stakes driven firmly down, and the edging nailed to it, is the most substantial way of putting down a board edging. The soil being levelled, let it be sheltered from very heavy rains either by boards set up over the bed, or by hoops and mats. Gentle rains will be of advantage, but heavy continued showers will make the soil wet, clammy, and unfit for planting at the proper season; but if the soil is moderately dry the bulbs can be put in as soon as the planting time arrives. T. Appleby.

THE KITCHEN-GARDEN.

Asparagus.—Attend to the directions given in our last number, and as soon as the stalks are ripe let them be cut down on some dry day. Even if not at the present time required for thatching temporary sheds for storing away the pea and bean sticks, or any other similar purpose, still let the asparagus stalks be tied up in bundles and stored away until wanted. They will, no doubt, come in usefully in the winter season for protecting purposes. Two or three of the best plants should be marked in the summer season, so that the seed may be saved from the finest shoots, and it is now time to harvest it. Those who may have any good rotten manure of any kind to spare, will do well on frosty mornings in the winter to wheel on a liberal dressing, and spread it all over the asparagus plantations, whether in beds and alleys, or in single rows, as directed last week.

Cabbage Plants.—Prick out, if you have any spare corners or sloping banks, all the spare cabbage plants you have; and if you have no ground available for this purpose, then clear the seed beds of all decayed leaves, weeds, and rubbish, and sift in amongst the plants some dry common soil in good pulverised condition, which will strengthen the crop and secure a good store for spring planting, for it is impossible to say what may be required after the ravages of a severe winter.

Carrots.—The Early Horn may now be advantageously sown for early coming in next spring. If any old temporary frames or lights can be spared for the purpose, so much the better; and any kind of fermenting materials for making a slight hot-bed will be of great assistance. Temporary pits may be formed with sods of soil, old slabs or boards, &c. If covered with glass, let the soil be placed close to it, so that the young plants may be strengthened, and canker or shanking be thus prevented. If the seed is sown without any protection, choose a warm dry spot or sloping bank. The Early Horn of this season's growth which are still remaining in the soil should be taken up at once, and stored in tolerably dry sand, or stacked in ridges in a dry situation, earthed over and thatched

Cauliflowers.—Keep previous directions in view. If early cauliflowers are required at an early season next spring, continue to prick out plentifully, surface stirring at the same time, and sifting dry dust amongst the plants if the weather continues damp. The late planted cauliflowers of this season should be carefully watched, and as soon as the head or flower shows, pull them up, and hang them by the roots in some shed where air can be admitted when necessary. Cauliflowers may, by care and attention, be secured in succession throughout the winter and early spring months. After hanging some time in these sheds as above recommended, the plants will lose their leaves, which is of no great consequence, as the flower itself will be supported a considerable time from its stem. It is only necessary to cut them a few hours previous to their being required for use, and to place them in clear water. Another mode of preserving cauliflowers and brocoli, any frosty looking evening whilst they are growing and are not quite ready to cut, is to turn in a few of their leaves over the heads, which will save many a head from the slight frosts and sunny days.

CELERY.—The present is a good time to make choice of, and put out, your plants for seed. Earthing up and bleaching must be duly attended to, and where taking up has commenced, the soil should be turned back in ridges on a regular system, to pulverize and sweeten, a plan which is far preferable and quite as easy to adopt as that of covering over the earth and trampling on it, in an untidy manner. Method, order, and the economy of time are three most important points in the management of a garden, as well as of most other things, and must be strictly attended to.

Those who have a warm border to spare, may now plant a few early *Mazagan* or *Long-pod beans*, and also another small portion of *Short-top radishes*.

SEA-KALE.—The plants on the quarters or beds, some portion of which are intended for early forcing, should have all the leaves removed that are ripe and will separate from the crown easily. Do this with the hand without injuring the crowns, and if any are not ripe enough, leave them a little longer. Clear all away, with weeds also, and then immediately give the whole of the beds a good dusting with slacked quick lime, to kill the slugs, &c. When this is done, fork up the soil over the beds and in the alleys very carefully, so as not to injure the roots, then give the beds a good top dressing; the soil from an old cucumber or melon bed is excellent for this purpose; take two-thirds of this and one-third of coal ashes, all well mixed together. Just give the whole beds two inches in thickness of this compost. By attending to the above directions, the beds will be found in excellent order to be put into action in the next month, as there is no plan of forcing sea-kale so good as that of inverting over the plants large flower-pots, or the proper sea-kale-pots, and covering them with fermenting leaves, and if leaves are not to be had, long dung from the stable that has been turned over three or four times to sweeten.

ENDIVE.—Full-grown endive plants should be looked after in this variable season, to keep wet and frosts out of their hearts.

ONIONS.—Those who want large onions to make up the loss of a full crop of this season's growth should transplant a quantity from their seed beds which were sown in August. Choose a good open quarter well prepared, and line out beds three or four feet wide; make them two or three inches higher than the paths, then plant the onions six inches distant every way from each other, and the work is done. These onions are found very useful for early summer use. JAMES BARNES & W.

MISCELLANEOUS INFORMATION.

OUR VILLAGE WALKS.

(No. 1.)

EVERY thing that belongs to the country possesses a peculiar charm, and the simplest observations upon what passes before our eyes, however feebly and imperfectly expressed, must be in some measure interesting, because whatever we see is beautiful, whatever we hear is musical, and wherever we go we witness the hand and seal of God. Walks in the country, among picturesque scenery, among cottages, and gardens, and orchards, and woods, afford abundant enjoyment and deep instruction. If we did but understand only half what we see, it would be a ponderous volume; for a leaf plucked as we pass would furnish a store of information, and surprise and delight us with the wonders of its perfect form. Every blade of grass that we press beneath our feet, every pebble that lies in our path, have a thousand interesting things to say, if we understood their language; and it is a subject of deep regret that we have not sufficiently studied every branch of knowledge, so as to be able to interpret the "unknown tongues" of the many wonderful works of God.

Man's first home was a garden, his first employment was "to dress it, and to keep it," his first happy, sinless days were passed among fruits and flowers! The love of gardening still cleaves to us; the tastes, as well as the sin, of our first parents have descended to their posterity; and although the ground is cursed for Adam's sake; although "thorns and thistles" spring up on every side, and "in the sweat of his face" man will evermore "eat bread," yet it has pleased a God of tender pity, who even in wrath remembers mercy, so to sweeten his toil and lighten his affliction by giving him a strong, deep interest in the labours of his hands, and the useful and beautiful productions of the soil, that his punishment is blessed to him, and a Father's love shines forth, not only in the beams of a summer sun, and the soft fertility of summer showers, but in every storm, every blight, and every disappointment. If the cottage gardener will consider these things as he digs and prunes, he will be a wiser and a happier man; a spiritual light will fall upon many things that he does and suffers, and a "good understanding" will be the consequence. If a disobedient child twitches off the forbidden pear or plum, what a sermon to the father! He sees his boy hiding with guilty fear "among the trees of the garden;" the very circumstances that passed in the Garden of Eden take place in his own little orchard, under his very eye. Happy will it be for him if conscience whispers "thou art the man."

Our earliest ancestors were shepherds; flocks and herds were their funds, and the rich untilled, unenclosed plains and vallies were their boundless, unincumbered estates. I never hear the bleating of flocks from the spring pastures without thinking of the patriarchs, the plains of Mamre, and the land of Goshen; and it heightens the beauty and deepens the interest of every pastoral scene when we thus connect it with the events or imagery of scripture.

I am strangely captivated at all times with the beauty of a blackberry bush, a common vilified bramble; and I am certain if it was an exotic, the growth of a rich and distant land, every one would admire it too, for its form is strikingly graceful and beautiful. Large patches of this plant grow richly in a larch plantation near my home, and bear large and beautiful fruit, and in the absence of all garden fruit, which has signally failed here this season, the abundance of this wild juicy berry is indeed very providential, for though little esteemed, it is useful and pleasant. A very excellent jam may be made from it, which has been taken for some superior preserve, and much surprise expressed on discovering that it grew on the wild hedges of England. The fruit may be boiled with half its weight of sugar, and when intended for the poor, brown sugar is preferable, as being a more wholesome article, although the difference in the expense is now inconsiderable. A large jar of blackberry jam would be a very useful gift to a poor family, as a small quantity thinly spread on the children's bread would make it much more satisfying, for bread alone does not appease hunger half so soon as when accompanied with butter, lard, &c. In my neighbourhood the poor are so extremely poor, that it is impossible to think that they could make even blackberry jam for their children's food; but in some cases this might be done, and I think with profit. Where bees are kept the honey would turn to good account if kept for this purpose, instead of being sold for a trifling sum, which is soon spent. One or two hives at least might be kept for the children's use, and they would certainly thrive well upon it. If the cottager's wife would send her children to gather blackberries, she might make them, in return, excellent puddings at scarcely any expense, for by simply stirring the fruit into flour, with sufficient water to make it all hold together, and then tying it up in a cloth, she will not need suet, and a very little sugar or treacle will give it proper sweetness. Apples cut into small pieces, gooseberries, and indeed any fruit made into puddings of this kind are very good, very cheap, and therefore very useful; and during the blackberry season dinners of this kind would be cheaper than bread, and the fruit would be more safely eaten than when devoured in a raw state by hungry children. A hedge of blackberry plants has been recommended in THE COTTAGE GARDENER as a fence, and admirable would be its use and appearance too. The cottager might have a beautiful, useful, and secure boundary to his garden, if he were to throw up a bank, and plant it with blackberry plants. He might cover the inner side of the bank with strawberries, and make *it* profitable too. No space *need* be lost, and every spot of ground that is turned to account adds to the beauty and the profit of the little homestead. How many beerhouses would be closed, how many empty seats in churches would be filled, how many suffering village shopkeepers would thrive, how many light hearts and happy faces would be seen, if cottagers would but "study to be quiet," "do their own business and work with their own hands," that they "may *walk honestly* toward them that are without, and that they may have *lack of nothing*." A parish then would be indeed one blooming garden; "trees of righteousness" would beautify it; there would be "no breaking in, or going out," and "no complaining in our streets."

True happiness, whether in a palace or a cottage, consists only in walking closely and humbly with God. Let the cottage gardener remember this, and his path will then ever be one of pleasantness and peace.

TO CORRESPONDENTS.

BEER-DRINKING (*A Tee-total Subscriber*).—We cannot do more justice to you, as an able advocate of a good cause, than by inserting the following extract from your letter:—"This week you have stepped out of the garden and put your foot into the mash-tub; and here you must not be angry if you find yourself at once *in hot water* with all your teetotal readers, and I hope you have a legion of them. At p. 338 you say, 'Not that we would debar the cottager from a moderate quantity of wholesome beer,' &c. You know that there are thousands of intelligent and good men who are now trying to convince the cottagers, the artisans, and all the industrial classes of England, the true philsophy of drink. They have introduced joy and comfort into thousands of cottage homes by dispelling this same delusion about *wholesome beer*, and it grieves them to find a writer like yourself, with whom they cordially sympathise in your general advice, confirming a prejudice in favour of a beverage which has wrought such deadly ills in every rural district in our beloved country. Do not let any little imaginary pleasure or benefit connected with 'a drop of beer' blind your poorer readers to the *danger* of the pot; experience proves that it is very easy to give it up altogether, but very difficult to drink only a little. Good Will Shakspeare gave good advice when he said, 'Oh! that men should put a thief into their mouth to steal away their brains!'"

DAHLIA SPORTIVE (*C. S., Mile End*).—Your dahlia having dark flowers on one branch and light flowers on the other is not uncommon, it is a variableness to which all flowers are liable; next year probably the flowers will be all dark or all light. You can move your *cherry-tree* as soon as the leaves have all fallen.

WASPS IN APRIL (*J. S. L.*).—It is possible that you might catch queen wasps at that season by hanging bottles of beer and sugar syrup about your south wall; at all events every one destroyed at that season prevents the formation of a nest.

ERECTING A SMALL GREENHOUSE (*Ibid*).—If we were situated as you are we should refer to p. 119 of THE COTTAGE GARDENER, and follow the directions there given; obtain the rafters, bars, &c., all ready cut and planed, from Mr. Montgomery, of the Brentford Saw Mills, Middlesex; buy the requisite glass from some wholesale house, and then, by the aid of the village carpenter and bricklayer, put it together. You might erect that described in our 52nd number in the same way. We cannot subject our correspondents to private applications.

FUMES FROM PIG-STYES (*J. B.*).—Cleaning the stye out daily; sprinkling it and the dung heap with chloride of lime is the most effectual mode of mitigating the stench.

WINTERING GERANIUMS (*W. H. W.*).—You will have seen what Mr. Beaton said in our last number. From that, and our answers at pp. 304 and 307, may be obtained all that can be said on the subject. Either your frame or your stable will do for their winter quarters, if you pot your rooted cuttings and follow the advice there given.

EXHAUSTED CUCUMBER BEDS (*J. W. R.*).—These will not do to grow radishes in during the winter; but they will answer well for wintering cauliflower and lettuce plants, for production early next year.

POULTRY FEEDING (*J. R.*).—Our correspondent (as well as ourselves) will be obliged by Mr. Haynes, of Daneford, writing us a detailed account of "how he feeds his fowls, the time and quantity of each meal, and any other information he is so fortunate as to possess relative to management which affords him the good return he has described."

DRESSING FLOWER BORDERS (*Beta*).—Dig the flower beds as soon as the plants are removed: leaving the surface rough for the frost to crumble. Your *wood ashes* will benefit the flowers next season, if worked in now.

MOVING ANEMONE SEEDLINGS (*P. H.*).—You have prepared a bed for their flowering next spring, and ask when you ought to move the young things which are healthy and growing a little? Seedling anemones should not be disturbed while they are growing. It weakens them and retards their flowering. You had much better plunge the box or pots into the ground early in the spring.

SCARLET SALVIAS NOT FLOWERING (*J. L., Tranmere*).—Your salvias have grown to a great size this year, but have scarcely flowered at all. Our own salvias behaved in a similar manner this season. Cut them down on the approach of hard frost, and remove the bottoms, with all the soil that will adhere to the roots, and keep them free from frost, in sand. They will spring up in March or April, when they may be divided into small pieces, and planted out in light poor soil, which has been deeply stirred. Your question about plants to flower in the spring was answered to another correspondent last week.

BRITISH QUEEN STRAWBERRY (*H. L. Jenner*).—We have no fear that you will not be able to cultivate this strawberry near the sea, in Cornwall, although the soil is "like so much Irish snuff." The British Queen does not dislike a light soil, provided it is rich and trenched very deep. We should trench the soil three feet deep, and mix thoroughly-decayed stable dung throughout the texture of the soil to that depth. Your being near the sea is also in your favour, and so is the moistness of the climate.

SEA-KALE AND ASPARAGUS (*J. A.*).—You must have dressed your sea-kale beds too soon; the leaves surely were not dead. However, as you have done it now leave them alone. As to your *asparagus beds*, you will have seen full directions for dressing them in our last number.

HEATING GREENHOUSE (*Constant Subscriber*).—Situated as your greenhouse is, it might be heated very easily by means of a boiler fitted at the back of your breakfast room fire, and with a pipe running from the boiler round the greenhouse. A Walker's stove would also answer your purpose. You could obtain it through any respectable ironmonger.

MODEL FLOWERS (*W. R. W. Smith*).—Thanks for your suggestion—we will adopt it as soon as we can.

FIG OVER-LUXURIANT (*Rev. T. G. Simcox*).—Your ten years old fig on an east wall, on a poor hungry soil, grows too rank, and upon stopping the shoots you find it bleeds much, and you ask our advice. We would take up your fig and replant it, raising the bed or border a foot above the ground level, taking care not to make it wide—say three feet at the most. The soil should be any poor fresh soil, with which some old lime rubbish may be incorporated. No pruning will avail whilst the tree has an unlimited range of root. You need not fear the tree bleeding to death. Figs will undergo almost any amount of this. In fact, it is difficult to kill a large fig, except by intense frost.

GERANIUM CUTTINGS CROWDED (*R. J. Y*).—Pot them now, rather than in the spring, into pots about 5 inches in diameter, usually called 48's.

SISYRINCHIUM BERMUDIANUM (*W. M. H*).—If, as you say, "the place where this was found (near Corfe Castle) has not certainly been cultivated, or had any care bestowed upon it for 50 years," and if it has not come from any chance sown seed, we think it might be considered as naturalised. Your plant is *Origanum majerana*, the common knotted marjoram.

Oleander Cuttings (*L. R. L*).—You will find your questions answered at p. 291, and the mode of striking oleander cuttings remarked upon at p. 266. Your mode shall be inserted.

Destroying Roots of Trees (*Ibid*).—Cutting down the poplar trees will not kill their roots extending into your garden. It will cause them to throw up suckers still more abundantly. You must dig down to the roots, cut through them close to your hedge, and then grub them up. *Verbenas* cannot be protected out of doors through the winter by turning a flower-pot over them and putting a piece of glass over the bottom hole. They would damp off. The plan mentioned at p. 108 of our last volume is a good one. In your proposed *greenhouse*, the top lights may be fixed, provided the openings into the granary behind are of a large size, and the front sashes can be opened wide when required. One of Mr. Rivers' stoves will thoroughly heat your greenhouse, 16 feet long by 12 feet wide.

Wintering Fuchsias and Geraniums (*One with a very Small Garden*).—No wonder you killed your plants last winter by starting them into growth by keeping them in a warm kitchen, and then removing them into the cellar. You will have seen what we have lately said on the subject. All that is necessary may be summed up in seven words—keep your plants dry, cold, and dark. If your cellar is quite dry and keeps out the frost, put the plants there altogether.

Meteorological Observations (*J. B., Knutsford*).—Our observations are founded upon tables, kept in the vicinity of London. *Horticultural Society's rules*, for rural districts, generally require modification for every locality, but we will consider whether we can usefully publish a list of rules generally applicable, subject to such modifications. Can any one inform our correspondent whether *Beauty of Clapham* and *Manchester* are the same variety of geranium? We do not know the latter. Is there such a variety of fuchsia as *Albiciensis*, or some such name?

Answers to Correspondents (*Rhodon*).—We will see whether we can arrange these alphabetically, without hindrance to answering with the least possible delay. We fear not.

Monthly Parts (*Schol, Chelmsfordiensis*).—Why do you not take "The Cottage Gardener" in weekly numbers? We cannot do more to make the monthly parts prospective than by giving the calendar we do for the coming month. Why did you not put the initials of your name? We recollect every schoolfellow, but remember none but Coote destined for the army. We shall be very pleased indeed to hear from you in your proper name, and can tell you of many of our old playmates; but it is a melancholy catalogue, for the most part.

Turf under Trees (*O. S.*).—It is chiefly the exclusion of light by the branches and foliage of the chesnut tree upon your lawn which kills the grass beneath it. Thin these branches as much as you can without spoiling their beauty, and early in the spring scratch the bare surface of the turf, and sow it with a mixture of the seeds of *Poa trivialis* and *Poa nemoralis*, two of the finest grasses which will grow tolerably beneath trees. There are other grasses which will grow there, but they are very coarse. Roll the ground after sowing.

Horse Chesnut (*Ibid*).—The bitter principle in the nuts of the horse chesnut is not poisonous. It very probably resembles the *esculin*, or bitter alkaloid, found in the bark of the same tree, and which partakes of the medicinal qualities of quinine. The chief component of the horse chesnut is starch, and, to render it fit for food, nothing more is necessary than to peel the nuts, slice them, and boil them very gently. The water will dissolve all the bitterness, and may be removed by straining. They might then be mashed, and would make a good food for pigs.

Insect in Beans (*Basil Ferrar*).—You will find, in our paper to-day, a drawing and particulars relative to the little beetle boring holes in your beans. Even if the grub from which it came has not destroyed the embryo of the seed, yet the hole it makes so lets in the wet and air that the seed decays without growing.

Thunbergias in Window (*J. C., Gateshead*).—You wish to preserve these through the winter, for blooming again next year. This cannot be; you must treat them as annuals, and not attempt to keep them as you wish. If the plants were very late in coming into bloom this autumn, they might flower on for two months next summer, but they would then die off.

Cups on Box-edging (*N. S. S.*)—We received a box, smashed and flattened by the Post-office stampers, but no cups. Cut down your *privet* now.

Meteorological Table (*J. Bonsfield*).—Thanks for your offer, but we have no spare space. Your request for the volume for your society is granted.

Water Melon (*Clerious*).—The leaf you sent us was certainly like the leaf of the bitter cucumber, and not like that of the water melon. The black seed you have sent (for which thanks) is certainly that of the water melon. Were all your plant's leaves the same shape as that you sent?

Vinegar Plant (*Rev. E. Bannister*).—We have this reply from Mr. Middlemiss:—"It is more than probable that the small circles, of which the Rev. Gentleman speaks, contain the germs of the future vinegar plant. But it appears to me that he has been rather too kind to the mixture, having given it a place in his *greenhouse*. Darkness is certainly more conducive to the growth of the vinegar fungus than light; therefore, I think, if the Rev. E. B. will put the mixture, covered over, in a cupboard near his kitchen fire, and let it stand undisturbed for a little time, he will yet have a plant off the mixture. If the organ of inquisitiveness be large in the cook, the Rev. E. B. had better put the mixture in the cupboard without giving any strict injunctions about its not being touched; lest, curiosity being excited, the mixture may be often shook about. I may add, that I lately saw a vinegar plant, almost as tough as leather, taken off some old vinegar that had been standing in a cellar for some time. It was 1 foot 6 inches in diameter."

Fowl's Dung (*W. A. Hadleigh*).—This, especially if mixed with that of the duck, is nearly as stimulating and promotive of luxuriant growth as the best guano. It is too rich for flowers, but most excellent for asparagus, rhubarb, spinach, cabbages, and other plants required to produce abundance of leaves or sprouts. The best time for applying it is early in the spring.

Ash-leaved Kidneys (*Ibid*).—These are best planted in the autumn, but Walnut-leaved kidneys not until the spring, but keep all between layers of earth until required for planting.

Geranium Cuttings (*Hortus siccus*).—It is common for the old leaves to turn yellow and fall when the young leaves come, which are more active to perform the requisite processes. You need not repot your cuttings until next spring. You may preserve your cuttings plunged in coal-ashes within a cucumber-frame if you take care to cover the glass so as to exclude the frosts, and open it every fine dry day to prevent the ill effects of damp.

Exposing Vines to Cold (*G. F. of F. W.*).—You have been advised to draw the stems of your vines out from the vinery, and expose them, covered with straw, to the winter. We are altogether opposed to such treatment; there never is any advantage obtained by so doing, but there is much unnecessary labour, and much liability to injury.

Crassulas done Flowering (*Ibid*).—Cut down those shoots of your crassulas which have flowered to within two inches of the old stems. If there are any green shoots that have not flowered, leave them as they are, and they will flower next summer. Those shoots which you cut now will not flower again till the summer after next.

Tropœolum Tricolorum (*A Constant Subscriber*).—We cannot name tradesmen, but it so happens that the nurserymen you mention are those from whom we had this flower.

Index (*Carrig Cathol*).—It would not pay to have a reprint of the two indexes in one. We are considering whether we will not have the next twelve months in one volume only. We will have the date put in as you suggest. Your questions shall be answered fully next week.

Removing Bees (*E. B. S.*).—You may safely remove a this-year's May swarm to a distance of two miles next month. Place the hive on a board, stop up the entrance, tie the whole up in a cloth, pass a pole through the openings left where the four corners are tied together, and let the two men who carry it step together as they walk.

Pure Sand (*Ibid*).—By "pure sand" is meant sand alone, sand unmixed with anything else. River sand is the best for potting purposes. Your other question next week.

Oleander Buds Dropping (*M. S.*).—The roots of your plants are probably in difficulties. Examine the soil in the pot, and if it be hard and bound pick out as much as you can without disturbing the roots, and repot it in the same pot, giving it some fresh mould. Keep it near the glass, water it freely, and do not let it go to rest until late in next month.

Best Cucumber (*W. H., Cheetham*).—If you merely require a prolific useful sort use the common Long Prickly for forcing; if you wish more for size and beauty sow Latter's Victory of England, Allen's Victory of Suffolk, Victory of Bath, or Browston Hybrid.

Best Pea for Winter Sowing (*Ibid*).—*Prince Albert* comes into bearing the earliest, and is both a good bearer and well-flavoured for an early pea. We cannot *recommend* sowing peas at this time; if you sow in strips of turf and place in a gentle hotbed at the end of January, you may plant out the seedlings at the end of March, turf and all, and have a forwarder crop than if you sow now, and without any danger from birds, slugs, and frosts.

Wintering Scarlet Geraniums (*Ibid*).—You will have seen full particulars how to winter young stock in one or two of our last numbers, and in our pages to-day. The name of your plant is *Penstemon gentianoides coccinea*; if you wish to propagate from it you may take it up and divide it into as many pieces as it will bear, pot the pieces, and keep them during the winter in a cold frame; or you may take cuttings from the stems now, pot them, and keep them in a cold frame. If you do not want to propagate from the plant, and your soil is dry and elevated, you may leave it in your border.

Names or Plants.—[⁂ We have again to request that *good* specimens of *flowers* may be sent to us, and so packed as to come in good preservation. No one can tell certainly from mere leaves.]—(*R. J. Y.*).—Your plant is *Cuphea platycentra*, one of the best of greenhouse or window plants; it is a native of Mexico, and introduced here in 1845. Like the scarlet geranium in summer it does well almost anywhere and anyhow; it is not particular about its soil, and flowers throughout the year; in winter it requires more warmth than that of a cold greenhouse. See p. 147 of our 2nd vol. and p. 268 of our first. (*John Lee*).—As far as we can judge from the faded flowers yours is *Fuchsia splendens*. (*Verax*).—We have no recollection of the plant named by us on Sept. 27th, but the plant of which you now enclose us a good specimen is certainly not a Coreopsis nor a Madia, but *Gaillardia aristata*.

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WEEKLY CALENDAR.

M D	W D	OCTOBER 18—24, 1849.	Weather near London in 1848.			Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
18	Th	St. Luke. Lime leafless.	T. 42—36.	N.	Rain.	31 a. 6	58 a. 4	6 30	2	14 45	291
19	F	Yellowhammer sings again.	T. 50—41.	N.E.	Cloudy.	33	57	7 2	3	14 56	292
20	S	Teal arrives.	T. 50—41.	N.E.	Rain.	35	55	7 39	4	15 6	293
21	Sun	20 Sun. aft. Trin. Walnut leafless.	T. 50—29.	N.E.	Rain.	36	53	8 21	5	15 16	294
22	M	Sun's declin. 11°7′ s. Coddy-moddy gull	T. 58—36.	S.	Rain.	38	51	9 9	6	15 25	295
23	Tu	Privet-berries ripe. [comes inland.	T. 56—44.	S.W.	Rain.	40	49	10 3	7	15 33	296
24	W	Golden plover arrives.	T. 60—47.	S.W.	Rain.	42	47	11 1	☽	15 41	297

N.B. The amount of Rain in inches, and the state of the Barometer during 1848, are shewn in the table below.

St. Luke.—It is believed that this evangelist was of Grecian parentage, but a convert to Judaism in early life. It is more certain that he was a physician by profession (Coloss. iv. 14), but there is no early authority as to the place of his birth. The best testimony is in favour of his being born at Antioch. Probable surmises are that he was one of the seventy disciples sent forth by Christ to spread the Gospel tidings, for he only of the four evangelists records the event (Luke x.), and that he was one of the two disciples to whom Christ appeared on their journey to Emmaus, for St. Luke only mentions the name of one, Cleophas (Luke xxiv.), yet is so circumstantial in all other respects that the narrative could scarcely come from the pen of any but an eye-witness. Besides the Gospel which is known by his name, St. Luke wrote the Acts of the Apostles, and in this book of the sacred writings the first allusion to himself is in the 10th verse of the 16th chapter, where the writer suddenly begins to write in the third person plural; hence it is concluded that he joined St. Paul about A.D. 53, and accompanied him to Philippi. With a slight interruption, we gather from the sacred writings that he continued St. Paul's constant companion probably down to the end of his first imprisonment at Rome. After this, tradition says he returned into Achaia, where he resided a long time, wrote his Gospel and the Acts, and died there at the age of about four score.

Meteorology of the Week.—It deserves a passing notice that chronologists have surmised that our world was called forth out of chaos on the 23rd of October; and Mr. Mackenzie, an old meteorologist, considers that they are about correct, because certain periodical phenomena have convinced him by their regular return, "that the elements were set in motion" about the end of our October. But we have to deal with facts, not surmises, and we may record that during the last twenty-two years the average highest temperature of these seven days is 58.4°, and the average lowest temperature 41.1°. The changeful character of the season is shown that during these 22 years rain has fallen on 78 days of those before us and 76 have been fine. The greatest amount of rain falling on any one of the days was .85 of an inch. The highest temperature noticed during these days has been 72°, and this occurred on the 21st in 1826. The lowest temperature was 20°, and which occurred on the same day in the year 1842. It is usually the season of violent gales of wind, and the one which occurred on the 18th, in the year 1834, was one of the most terrific that ever visited our coasts. The mean temperature of the year occurs about the 21st of October and the 24th of April. Thus, during the last twenty-two years, at Chiswick, the average temperature on the 21st of October is 49.8°, and of the 25th of April, 49.8°.

Natural Phenomena Indicative of Weather. *Bats.*—These animals and *Dor-beetles* flitting about late in the evening in spring or autumn foretell that the next day will be fine. But, if bats retreat early to their hiding places, uttering their peculiar squeaking cry, bad weather may be anticipated.

RANGE OF BAROMETER—RAIN IN INCHES.

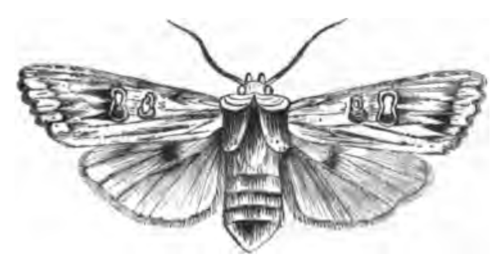
Oct.		1841.	1842.	1843.	1844.	1845.	1946.	1847.	1848.
18	B.	29.829	29.465	30.157	29.779	30.218	29.635	29.718	29.636
		29.591	29.202	29.855	29.618	30.111	29.449	29.598	29.550
	R.	0.42	0.40	—	—	—	0.85	0.08	0.04
19	B.	29.962	29.518	30.343	29.782	30.253	29.750	29.476	29.738
		29.524	29.250	39.312	29.577	30.123	29.668	29.382	29.596
	R.	—	0.02	—	0.03	—	0.08	0.07	0.01
20	B.	29.911	29.739	30.321	29.460	30.148	29.559	29.856	29.789
		29.611	29.647	30.104	29.416	30.019	29.536	29.708	29.747
	R.	0.04	—	0.25	0.03	—	0.25	0.20	0.34
21	B.	30.162	29.980	30.045	29.601	30.341	29.071	30.036	29.887
		29.818	29.883	29.869	29.510	30.254	28.950	29.748	29.759
	R.	—	—	0.01	0.64	—	0.37	0.01	0.10
22	B.	30.124	29.726	30.086	29.897	30.477	29.338	30.155	29.720
		29.861	29.025	29.897	29.766	30.405	29.080	29.932	29.504
	R.	0.01	0.50	0.11	0.04	—	—	0.01	0.12
23	B.	29.449	28.956	30.048	29.912	30.510	29.821	29.699	29.624
		29.031	28.802	30.012	29.771	30.477	29.614	29.452	29.487
	R.	0.21	0.07	—	0.04	—	0.22	0.44	0.56
24	B.	28.964	29.546	29.868	29.706	30.402	29.523	29.728	29.536
		28.924	29.171	29.544	29.671	30.144	29.479	29.700	29.493
	R.	—	—	0.34	0.88	—	0.12	0.01	0.15

Blue Sky.—It is a proverb, not destitute of truth, that "If during a rainy morning there is seen a piece of blue sky large enough to make a Dutchman's breeches the afternoon probably will be fine."

Bones reunited after being broken are apt to ache at the point of their reunion at the approach of rain—to the truth of which Lord Bacon gives his testimony, though his theory is more than doubtful. "*Aches* and *corns*," says this philosopher, "do afflict either towards *rain* or *frost*: the one making the humours to abound more, and the other makes them sharper." Whilst "Hudibras" exaggerating for the sake of his satire says:—

Old sinners too have all points
O' th' compass in their bones and joints,
Can by their pangs and achings find
All turns and changes of the wind;
And, better than by Napier's bones,
Feel in their own the age of moons.

Insects.—In May and October, in the shady places of gardens, the large Sword-grass moth is occasionally found. It is the *Calocampa exoleta* of some naturalists, and the *Noctua exoleta* of others. It is one of the finest of our autumn moths, measuring more than two inches across its expanded fore-wings. These are partly brown, grey, and buff, pencilled with black zig-zag lines towards their base, and dotted with black on the veins and margin. There are two somewhat ear-shaped, light-coloured spots in the centre of each fore-wing. The hind-wings are greyish-brown, with a darker and crescent-shaped mark near the base. The front of the thorax is pale ochrous-coloured, and its back dark brown, and marked as represented in our drawing. The caterpillar is green, dotted with white, with a yellow line down each side near the back, and a red line along above the feet. It feeds on any species of *Iris*, and we have found it also on the common Sawwort (*Serratula tinctoria*).



Last week we closed our observations with some notes upon the consequences arising from roots being kept in a heat too high for their healthy growth, and we may resume our remarks by observing that if the temperature of the soil be unnaturally below that in which the branches are vegetating, the effects are equally, though differently, disastrous. The supply of sap obtained by the chilled roots is too much diminished in quantity, and the edges of the leaves consequently die, or the blossoms fall, or disease attacks some part of the fruit, according to the nature of the plant, or the stage of growth in which it occurs. The shanking in grapes appears traceable to this cause.

Then, again, a soil abounding in superfluous water is always colder than a soil of similar constitution that has been well drained. The reason for this is obviously that the same quantity of caloric (heat) which will warm the earth four degrees will only heat water one degree; or, to use the language of the chemist, the capacity for heat of water is four times greater than that of the earth's. In every day experience, we see the low lying, and consequently the wettest, portions of a field are always those on which the evening mist or fog first appears; for at one season of the year it becomes colder than the air, and the atmospheric moisture always precipitates first on the coldest surface. At other seasons of the year, evaporation from the wettest portion of a field is the most abundant; and, at those seasons, mists are formed by the temperature of the air being much below that of the earth, and consequently condensing the watery exhalations from the latter. The greater the difference of temperature the denser is the mist, the condensation being more complete.

Returning to our immediate subject—the seed—we will observe, as on a former occasion, that the time will probably arrive when greater precision will be attained as to the time when our various seeds may best be committed to the soil. We shall owe that advance to a more complete knowledge of what may be termed *the coincidences* or *synchronisms of nature*.

The attempt to attain knowledge on this subject is not new, for nearly a century since Harald Barck and Alexander Berger, in Sweden, made many observations directed to this object, and in later years Stillingfleet and Martyn have done the same in England.

The first named of these botanists thus expresses himself upon the subject: " If botanists noted the time of the foliation and blossoming of trees and herbs, and the days on which the seed is sown, flowers, and ripens, and if they continued these observations for many years, there can be no doubt but that we might find some rule from which we might conclude at what time grains and culinary plants, according to the nature of each soil, ought to be sown; nor should we be at a loss to guess at the approach of winter; nor ignorant whether we ought to make our autumn sowing later or earlier."

M. Barck would derive his intimations from the vegetable tribes alone, but we think the other kingdoms of organic nature might be included—as the appearances of certain migratory birds, and the birth of certain insects. For example, in the east of England, it is a common saying among gardeners—confirmed by practice—When you have seen two swallows together, sow kidney beans.

This synchronical mode of regulating the operations of the cultivator of the soil is no modern suggestion, but the efforts of Barck and his successors have only been to find such indications in our northern clime that would be of the same utility, and similarly admonitory as others adopted by the ancients in more sunny latitudes. Thus Hesiod says, If it rain three days together when the *cuckoo* sings, then late sowing will be as good as early sowing; and in another place, when *snails* begin to move and climb up plants, cease from digging about vines, and take to pruning.

That our operations may be made justly coincident with certain appearances in nature is supported even by our present limited knowledge. "It is wonderful," says Mr. Stillingfleet, " to observe the conformity between vegetation and the arrival of certain birds of passage. I will give one instance as marked down in a diary kept by me in Norfolk, in the year 1755. 'April 16th *young figs* appear; the 17th of the same month the *cuckoo* sings.' Now the word κοκκυξ signifies a *cuckoo* and the *young fig*, and the reason given for it is, that in Greece they appeared together. I will just add, that in the same year I first found the *cuckoo flower* in blossom the 19th of April."

" Linnæus says, that the *wood anemone* blows when the *swallow* arrives. In my diary for the year 1755, I find the swallow appeared April 6th, and the *wood anemone* was in blow on the 10th of the same month. He says that the *marsh marygold* blows when the *cuckoo* sings. Accordingly in my diary that flower was in blow April 7th, and the same day the *cuckoo* sang."

THE FRUIT-GARDEN.

Root Pruning.—At page 331 of our last volume, a few maxims were laid down which had, in the main, reference to root pruning under all circumstances. We now proceed to particularise its application, for occasions will arise, both from kind and circumstance, which will in some degree modify the operation.

In the first place, then, even old trees of some kinds will bear root pruning, but not all alike. We have within these last twenty years root-pruned pear trees in so severe a manner as would have been totally destructive of the constitution of the peach. The trees alluded to were of the *Aston-town* variety; they were growing against a wall having a north-eastern aspect, and were, to all appearance at least, thirty or forty years old. Indeed, their trunks at the base were, at the time of the operation, nearly a foot in diameter. These trees we were informed had been useful bearing trees some years previously, but had ceased to be productive; producing breast wood nearly a yard from the wall. A former gardener, lamenting their barrenness, had trenched a huge quantity of manure in at their roots; for, as far as I could learn, muck—plenty of muck—as the Cheshire folk term manure, was the only cure known to him for all vegetable diseases. The best of the joke, however, remains; the trees had huge old spurs all over them, extending six inches from the wall, most of them of a peculiarly remarkable character; these he, at the same time, shaved clean away. What, of course, might have been anticipated did indeed occur; the trees made what was termed capital new wood, and this, according to the most approved ancient recipe, was scientifically spurred back, with the idea of generating fruit spurs. The obstinate trees, however, had been so much accustomed to run riot, that they became actually more unmanageable, and instead of yielding their contributions to the proprietor's fruit room they continued year by year to augment the faggot pile. Still the worthy who managed them persisted in spurring back, with an amount of patience which really deserved a better fate. In this state, then, we found the trees 22 years ago, when next March arrives. We had then been what may be termed dabbling in root-pruning somewhat secretly, for in those times we could not afford to be laughed at. Ringing also had been practised, and in a year or so afterwards these huge Aston-town pears had a ring of bark removed, of some four or five inches diameter, all round the bole, removing alburnous matter as well entirely away.* "Kill or cure" was the maxim.

We will not go so far as to say that the trees made as much breast-wood as ever, but, truly, they still rambled away, laughing our puny efforts to scorn. Neither, as far as we remember, were any amount of blossom-buds produced worthy of notice; and, strange to say (old as the trees were, and possessing a huge excrescence of old bark nearly an inch in thickness), the wound made by ringing commenced healing with such rapidity, that in a couple of years we could barely discern the place from whence the bark had been removed.

Finding that ringing would not reach the evil, recourse was next had to root pruning; and as the trees showed such an amount of hardihood, we determined that this business should not be half done. An excavation was accordingly made in front of each tree opposite the bole, and at about half a yard distance from it; and here we cut through every root which presented a barrier to such proceedings, feeling assured that some enormous tap roots had penetrated the subsoil, which is what is termed by the country people a "booty sand," that is to say, an adhesive material, which appears to blend the marly with the sandstone principle. After passing through or between huge black roots, we indeed met with the tap-roots; and really one tree stood more like a three-legged stool than anything else. Three huge black roots had struck down almost perpendicularly. Here, then, lay the true secret of the enormous amount of breast-wood. These fangs were cut away, and a great sacrifice this appeared. We here found, too, the stratum of manure before alluded to, at about four feet in depth, or nearly so; it had become, in time, a complete humus, or peaty-looking substance, and was crossed in all directions with roots. The soil was then filled in; and, it being the month of December, we waited with some anxiety to see how far this strong operation would affect the production of breast-wood the following spring. April and May arrived; but, what a change had occurred! The trees could scarcely develop a shoot of six inches in length, all that summer; and we now found that cutting away the roots, or in other words restricting the supply of food, was a more powerful operation by far than merely arresting or clogging the vital action for a time, by means of ringing. The trees now became short-jointed; spurs, real natural spurs, began to form, and thenceforward we began to eat Aston-town pears again. The trees have continued to bear tolerably good crops in most seasons since; but, strange to say, they are again inclined to become somewhat over-luxuriant.

I ought to mention here that the cutting of the roots was so severe that the main trunk of the trees (which I before named as nearly a foot in diameter at bottom, and might be about six inches at the top) sunk, and became detached from the wall which it before joined; and at this time the main bole hangs six or eight inches from the wall at the top.

We will commence our further remarks upon root-pruning by quoting the words of Dr. Lindley, in his "Theory of Horticulture." At page 262 the doctor says:—"If performed at all, root-pruning should take place in the autumn; for at that time the roots, like the other parts of a plant, are comparatively empty of fluid; but if deferred till the spring, then the roots are all distended with fluid, which has been collecting in them during winter, and every plant taken away carries with it a portion of that nurture which the plant has been laying up as the store upon which to commence its renewed growth." "Its effect is proportionately to cut off the supply of food, and thus to arrest the rapid growth of the branches; and the connexion between this and the production of fruit has already been explained." Again: "It is by pushing the root-pruning to excess that the Chinese obtain the curious dwarf trees which excite so much curiosity in Europe." Admitting most fully these views of the matter, we will proceed to offer remarks based on long practice and observation.

ROOT-PRUNING THE PEAR.—First in order, then, we would name the pear as the most eligible subject for this operation; this we think has become tolerably manifest. Next to the pear we think the apple may be placed, then the plum, next the peach and nectarine, then the cherry and apricot. We speak now of the ordinary wall fruits, and the order in which they are here placed is intended to point both to their vital powers of endurance, as also to the frequency of the cases which may be expected to present themselves to fruit growers. The fig and the vine we have left out of the catalogue, as they are not every day fruits; we shall, however, have something to say about them in due course.

To begin with the pear: we must point to the fact that on the *free stock* this tree is peculiarly liable to tap-roots. On the quince it is quite another matter; here the roots are of the most fibrous character, so much so that we can barely conceive a case in which root-pruning becomes necessary. We, nevertheless, have no less an authority than Mr. Rivers against us, who, it would seem, root prunes even on this stock periodically. We must, however, remember his object, which is to produce trees so dwarf and compact in character that the holder of a score square yards may possess his miniature fruit-garden, and vegetables to boot. As to the free stock, then, if pears are growing luxuriantly on these without bearing, it is almost impossible to root prune too severely, at least the deeper roots. If in an orchard, and trees are of some size, they may be curtailed all round also; the amount of root removed bearing, of course, a direct ratio to the amount of luxuriance. In the espalier border we must be content to get at them how we can, remembering what we before observed, that even the cutting of one side will assuredly affect the whole system of the tree, although perhaps not in an *equal* degree; at least, we dare not in the present state of gardening science affirm it.

ROOT PRUNING THE APPLE.—This tree is found in such a variety of shapes and sizes that it is not very easy to generalise a system of root-pruning, at least so as to make ourselves generally understood by those who have not yet dabbled in its practice. We may first observe that the apple even on the Crab or free stock is not quite so liable to tap-roots as the pear on the wild or free stock. Another point we may name also—the apple with an over severe amount of root-pruning is apt to become infested with red spider during the first summer after the operation. This we have repeatedly proved, and the remedy is sometimes worse than the disease. We introduce this caution to show that some degree of moderation becomes necessary, and that although root pruning is correct in principle, yet it may be prejudiced in rash hands. We always deem it expedient, therefore, to apply a mulching to espalier or trained apples immediately on the heels of the operation: this encourages surface roots, and prevents the too sudden operation of extreme drought, which, combined with root-pruning—the summer succeeding the operation—is almost sure to cause the tree to be infested with the spider, the scale, or what is as bad as either, that rusty-looking fungus on the leaf, which if not checked may soon break up the constitution of the tree. We have had much experience of this last enemy, to which light and hot soils are peculiarly liable, and the only cure for it, as far as our experience goes, is a permanency of moisture at the root.

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* *Alburnous matter.* The outer portion of the wood, in which are most of the sap vessels carrying the sap *from* the roots.

R. Errington.

THE FLOWER-GARDEN.

Dahlias in the First Prize Stands at the Royal South London Floricultural Society in September, 1849.

	ft.
Andromeda, buff or light amber, pink tip	4
*Black Prince, maroon or dark crimson, fine	4
Box, bright scarlet	5
Duke of Wellington, orange	
Fearless, rosy lilac, fine	4
*Gem, white and lavender	3
Grenadier, ruby crimson or claret, fine	5
Hector, dark maroon, fine	4
*Louis Philippe, crimson, fine	4
*Marchioness of Cornwallis, blush, fine	4
*Miss Vyse, white, tipped purple, fine	3
* Mr. Seldon, rosy purple, shaded with lilac, extra fine	3
Mynn, crimson, fine	4
Nonpareil, red	3
Privateer, yellow, tipped red	3
Queen of the East, blush pink, fine dwarf	2 to 3
*Richard Cobden, dark crimson, fine, large flower	4
*Scarlet Gem, a fine formed flower, but inferior to the next	4
*Shylock, vivid scarlet, and the finest of that colour	3
*Toison d' Or, pale buff, a fine dwarf	2
*The Hero, large fine rose	5
Victory, rosy purple or dull red	5
Violet Perfection, a purple violet, fine	4
*Yellow Standard, fine—the best yellow out	3

FANCY DAHLIAS EXHIBITED AS ABOVE.

Belle de Nogent, crimson, tipped white, fine	3
Bon Mam, nankeen, tipped white	4
Comte de Flandre, dark red, tipped white, fine	4
Conspicua, violet crimson, tipped white, a large fine flower	4
*Empereur de Moroc, dark maroon, tipped white, extra fine	3
Gasparine Furstin Reuss, dark, tipped white	4
General Cavaignac, violet purple tipped white, extra fine	5
*Hermione (Hermina of some), red, tipped white	4
*Jenny Lind, maroon, tipped white—a beauty	3
*Madame Wachy, purple, tipped white, extra fine	3
Miss Blackmore, white, with purple stripes	3
Miss Jane, purple, tipped white, fine	5
Miss Stevens, buff, orange, and white	3
*Œillet Parfait, orange, striped with red, fine	4
*Picotee (Paris) yellow, with red stripes and spots, fine	4
Post Secretaire Hane, violet, tipped white	4
Rainbow, reddish scarlet, tipped white	3
*Remembrancer, rose, tipped white, fine	3
Striata Perfecta, lavender, striped and spotted with rosy lilac	3
*Vicomte d' Ressequier, light purple and white, fine	5

The following dahlias comprised the first prize stands of nurserymen and practical gardeners at the Caledonian Horticultural Society, Edinburgh, in September, 1849.

*Beeswing, ruby crimson	3
Boule d' Feu, bronze scarlet, peculiar tint	4
*Captain Warner, dark crimson	3
Cleopatra, large yellow	5
*Crocus, pale yellow	3
Duke of Wellington, orange	
Empress of Whites	3
Grenadier, ruby crimson or claret, fine	5
*Marchioness of Cornwallis, blush white, fine	4
*Mr. Seldon, rosy purple, shaded with lilac, extra fine	3
*Princess Radzivill, white and purple, fine	3
Purple Standard, purple crimson, well-shaped	4
*Scarlet Gem, fine flower, but not so good as Shylock	4
*Standard of Perfection, rosy crimson	3

FANCY DAHLIAS EXHIBITED AS ABOVE.

Bijou de Chloshault (Closhault), dark rose and white, fine	4
Duchess of Sutherland, rosy purple, tipped white	4
Erzhorzog Stephan, white, striped with violet	4
Harlequin, white, tipped with scarlet	4
*Hermione, red, tipped white	4
*Jenny Lind, maroon, tipped white—a beauty	3
*Madame Wachy, purple, tipped white—another beauty	3
Mirobolant, a mottled thing; send it farther north	4
*M. Adolphe Dulras, nankeen, tipped and mottled white	3
M. Chereau (Cherue of some), red and white—so-and-so	4
*Mrs. Shaw Lefevre, rose, tipped white	4
Surprise, purple and white	3
*Triumph de Magdeburgh, scarlet, tipped white, fine	6
Victorata, vermillion and orange	3

The following 33 show dahlias comprised the first two successful stands in London in 1848—amateurs and nurserymen competing with stands of 21 dissimilar colours, as, I believe, is always the custom there. All these will of course be cheaper next spring than those in the list for this season, and by comparing the two lists together the amateur who is not over-burdened with money will be able to select a few really good dahlias at a low price.

Andromeda, exhibited in London in 1849.	
*Beeswing, exhibited in Edinburgh in 1849.	
Berryer, very dark, a useful old flower	4
*Black Prince, a dark crimson, and very useful yet	4
*Box, exhibited in London in 1849.	
*Captain Warner, exhibited in Edinburgh in 1849.	
*Captivation, dark peuce, shaded with crimson	4
Conspicua, sulphur, shaded with purple—will do yet	5
Essex Bride, blush lilac: no one would select this Bride now	4
*Essex Triumph, very dark, not so good as Black Prince	4
*Gem, exhibited in London in 1849.	
Gloria Mundi, buff—will not do now	4
Golden Fleece—its gold has now been tarnished	3
*Lady St. Maur, white, tipped with lavender, good	4
*Louis Philippe, must not say *exhibited* in London.	
Marquis of Aylesbury, dark lilac: in 1849—a capital flower yet; a dwarf.	
*Mrs. Anderson, pale lilac, a good flower yet	4
*Miss Vyse, exhibited in London in 1849.	
*Mynn do. do.	
Nonpareil do. do. beaten by Gem and Shylock.	
*Princess Radzivill, exhibited in Edinburgh in 1849.	
Queen of Roses, rosy pink, not much	4
Raphael, dark, but not near so good as the next	4
*Richard Cobden, exhibited in London often.	
Sarah, white, laced with cherry (nearly done)	4
*Scarlet Gem, exhibited in London and Edinburgh in 1849.	
*Shylock, exhibited in London in 1849.	
Sir R. Peel, dull scarlet.	
Springfield Rival, ruby: I believe the oldest of the whole.	
*Toison d' Or, exhibited in London in 1849.	
*Yellow Standard, do. do.	

FANCY DAHLIAS AS THE LAST.

Bouquet de Brueil, red and white	2
Dulcinea, lilac, with stripes of white	4
*Empereur de Moroc, exhibited in London in 1849.	
*Emilie Lehmann, rosy scarlet, tipped with white	3
Freund Schmidt, red, tipped white, good	4
*Hermione, Edinburgh and London, 1849, a good character.	
*Jenny Lind, Edinburgh and London, 1849, a good character.	
*Madame Wachy, do. do. do.	
*Mr. George Clayton, white, with purple stripes, good yet	4
Picotee, London, 1849.	
*Roi de Pointilles (Points of some), maroon, tipped white	4
Triumph de Magdeburg, Edinburgh, 1849, fine.	
*Vicomte de Ressequeir, exhibited in London, 1849, fine.	

Of the above show dahlias, the following 18 were in the two first winning stands in London in the autumn of 1847, and by comparing these with the former lists the poor cottager who can spare four or five shillings, or at most six, can buy a dozen of them next spring, and still have a tolerable good stock of this beautiful flower:—Beeswing, Berryer, Captivation, Captain Warner, Essex Triumph, Louis Philippe, Marchioness of Cornwallis, Marquis of Aylesbury, Mynn, Miss Vyse, Nonpareil, Princess

Radzivill, Queen of Roses, Raphael, Sarah, Springfield Rival, Standard of Perfection, and Yellow Standard. The best fancy dahlias of 1847 have appeared in such small numbers in the first winning stands this season that it is hardly worth mentioning them. This indicates a more rapid improvement in the "fancies" than in the old kinds. Hermione, Mr. George Clayton, Roi de Pointilles, and Vicomte de Ressoqueir, were the only fancy ones of 1847 which stood their ground this season, and of these only two came out in London—Hermione and the Vicomte de Ressequeir. To be in the fashion, therefore, whether in dress or in dahlias, we must keep buying novelties every season. Nevertheless, there are several good fancy dahlias that were in high repute as late as 1847, and would still improve the stock of many an *honest* grower who could admire them at home without going to the fuss of cooking them for exhibitions, and as they must now be very cheap, I shall give their propagation, culture, and every other topic connected with their management that I can think of.

*Adolphe Dulras, nankeen and white tips	3
Bouquet de Brueil, scarlet and white tips	4
Ersherzog Stephan, white with violet purple	4
Harlequin, scarlet and white tips	4
*Hermione, scarlet and white	4
Ludwig Pemsl (sounds as Pemsel), maroon and white ..	3
*Madame Wachy, purple and white tips..	3
*Mimosa, deep yellow and white tips—quite a dwarf.	
Mr. George Clayton, white and purple	4
Pantaloon, crimson, tipped white	4
*Roi de Pointilles, maroon and white	4
Surprise, purple and white	3
Vicomte de Ressequier, light purple and white	5

I had no opportunity of seeing the new fancy seedlings of this season, but a friend writes me word that they are few in number, and not much in advance of the older ones, and that "one called *Elizabeth* is the best of them, and will be the only one which can stand against foreign competition next season, if the growers have not joined in the mad revolutions, and forgot their seedlings."

Storing Dahlias.—When the leaves are blackened by the frost, let the stems be cut down at once to within six inches of the ground; but the longer they are left after this in the ground, if safely secured from frost, the better, as, like all other plants, their buds for next season's growth will swell much after close pruning, and the neck from which these buds issue will ripen and get so firm that the roots, or rather the tubors, will keep much better through the winter than if they are taken up quite green as soon as the tops are killed. Some people recommend a little soil to be drawn over them at this stage to protect them from the frost, but surely this comes of not considering the subject properly. The very reverse is a much better plan. If you draw the soil away from them so that the upper part of the tubers is exposed to the sun and air, will they not harden and swell out the buds for next season much better than if you bury them to blanch in damp soil? I have seen them thus treated, and they answered better than by any other way; not one out of a hundred damped off in winter, and the only protection they received from frost was a couple of handsful of litter from the stables tied up in little flat bundles; and a boy went round in the evenings with a barrowful of these bundles, and threw one over each root. In the morning he collected them into the barrow again, and set them out of sight for the day. I have seen the dahlia frosted in September, and thus kept in the ground till Christmas; and I am strongly of opinion that our injudicious mode of pulling them up as soon as the tops are gone is the real cause of their degenerating so fast. Their buds for next year are only in what a physiologist would call the first stage of incipiency when they are overtaken by the frost; we hurry them into dry sheds, vegetation is arrested, and next spring we complain, "How badly my dahlias have broken this spring," and three or four such "bad broken" seasons are enough to wear out a beautiful flower that ought to last a dozen or fifteen years. This evil is much aggravated by too much cutting "for stock" in the spring; and before we have time to learn their names properly they are gone—"and where are they?" Where, indeed!

But there is another side to the question: "If dahlias will improve, as you say, by being kept in the ground so long, would they not be still farther improved provided we could keep them in the ground from year to year?" Now, this is a fair specimen of the way some people "jump at conclusions," without understanding what they read. I did not say that dahlias could be so improved, nor do I believe that they, or any other plants, can be improved by any process whatever, farther than what is stamped on them at the moment of impregnation, but I know that wiser heads are of a contrary opinion. The sum of my argument goes no farther than that we should ripen the tubors before we store them away for the winter, as far as our climate, aided by our own ingenuity, can effect, in order to enable them to retain their original characters as long as possible. Now, if you keep them in the ground from year to year you are grieviously wrong, as by that means you disturb the "balance of power," as diplomatists say, between the roots and the branches. Let the roots be once established that way in strong rich soil, and they will send more water up into the stems and leaves than the latter are able to digest under an English sun, and the immediate consequence is a falling off of the best properties of the flower. A wet season, a rich damp border, or a highly-manured bed, does the same thing with our fancy dahlias, and turns them into "selfs," or one colour, in a few months, and yet we cannot read the lesson, or if we do we neglect to turn it to useful account. Meantime let us ripen our best dahlia roots; then take them carefully up, cut down the remaining part of the stems to within an inch of the tubers, dry them slowly in an airy room or shed, and then store them away. D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

Camellia.—This family of beautiful evergreen hardy greenhouse plants was named in honour of George Joseph Camellus, a celebrated Jesuit who travelled in the East. It belongs to the 16th class of Linnæus, and the natural order Ternstrœmiaceæ. *Camellia Japonica* was an inhabitant of our greenhouses more than a century ago. It is doubtful to whom we are indebted for the introduction of some of the superior kinds at a more modern period. The late Mr. Main, well known for his many excellent works upon gardening, was sent out to China as a collector in 1792, by Mr. Slater, of Low Leyton, in Essex; but, though he packed the double white, the double red, and the double striped, for that gentleman at Canton, and superintended the packing of them and many other good things for private individuals, and for the Royal Gardens at Kew, which were to be sent home in different vessels, he never could clearly find out how many plants he was instrumental in introducing, as before he reached London Mr. Slater died, and as his executors did not inherit his tastes, poor Main had something else to think about than tracing the damaged remnants he succeeded in bringing home. Being very unobtrusive in his manners, Mr. Main was not a man to pretend to an honour to which he was not clearly entitled, though, as many of the cases for Kew, and private gardens, sent in other ships were in fair order, when the fleet touched at St. Helena, it is to be presumed that some of them would reach their destination in safety. Now, I would not have introduced these matters, but for one fact which I think at present will be extremely useful to many of those who hardly know how they are to save their plants during the winter. The fact was one to which Mr. Main several times alluded in private conversation; namely, that he never was so mortified in his life as to find at St. Helena that boxes of plants in other ships were comparatively safe and sound, that had never been touched, received no attention, but were nevertheless comparatively unscathed during the variations of temperature through which they had passed; while the plants under his *own* care, on which he had bestowed nights and days of watchfulness, in giving air, in shading, in watering, in moving from one part of the ship to the other, were miserable wrecks. He saw enough to teach him his error, and no doubt would have been more successful if he had returned a second time. He killed his plants with extreme care, just as many of our cottager friends lose theirs, because they have such a desire to coax and coddle them at unsuitable times. A lady very fond of flowers, and especially of fuchsias, had by our directions put them during the winter in a room in the garden, which had a few squares of glass in the door, with advice to keep them dry. Her liege lord, a very learned and, what is better, a very good man, and who would laugh heartily were I even to put his name in print, though he had never been known to handle the water-pot, yet espying these fuchsias in a fine day in winter, his feeling heart could not but take compassion upon the poor starved dried-like things, and he said to himself, "Well, I must give them a reviving drop for once," and true enough he drenched them well, and soaked the floor into the bargain. The frost of the following night next thing to settled the plants, which but for his *kindness* would have been safe. The rule, then, to be deduced from this digression, and which just meets the case of some correspondents, is, if you cannot apply artificial heat so as to keep your plants growing slowly during winter, the best thing is to place them just where the frost will not reach them, where vitality shall be preserved, but where all growth shall be discouraged until the days lengthen and the weather becomes warmer.

The camellia is hardier even than the Chinese azalea. It has hence been recommended to plant it out of doors, and even to train it against a south wall, which, however, we should consider the most objectionable place for it, for two reasons; first because the leaves do not like the full glare of sunlight in this country; and, secondly, the buds would be so forward that they would be apt to open their blossoms during winter, when from frost and rains they would not be worth looking at. A better plan would be to plant them out in a shallow border on a north aspect, as there the growth would be more stunted, the wood as firm, with a chance of blooming later in the spring. We mention this because some may wish to experimentalize at acclimatising, though we have little hopes of seeing the camellia succeeding out of doors, not because the plant is so tender, but because its flowers open naturally in winter and spring, when protection from such weather as we generally have is necessary to ensure their beauty. The foliage, indeed, is beautiful, but without its splendid flowers, we see little to recommend the camellia, merely as an evergreen, over our common or Portugal laurels. We should, therefore, recommend that they be all removed into the greenhouse and conservatory, or at least be placed under shelter. If grown early for a few years, they will flower afterwards early in winter with but little trouble, and thus nobly take the place of the chrysanthemums, when the blaze of that autumn flower is over. To obtain early flowering, the plants should be taken for a few seasons to a vinery or peach-house at work in the spring, where they would be slightly shaded; rapid growth would thus be encouraged, and then, after being more exposed to harden the wood and set the buds, the plants may be removed to a sheltered place out of doors during the end of summer and the mild part of autumn. The wood will thus be sturdier and the buds firmer; but care should be taken that the leaves are not too much browned, as it requires a long period before they again recover their glossy green, in which their chief beauty consists. Where no forcing house exists, the same object may be gained by keeping those plants you wish to have early, along with azaleas, longer in the greenhouse, kept closer and more moist to expedite their growth, or one end may be set apart for that purpose. Those you wish to flower in winter should also be placed by themselves, as they will require a rather higher temperature to open their blossoms nicely than will do for greenhouse plants generally. When once fairly open, a low temperature will suit them. Large plants of azaleas in full flower were removed to a glass case without artificial heat, in the end of January, and suffered no harm; but then they were examined late every frosty night, and could have been removed to the conservatory if it had been very severe.

The camellia, as well as the azalea, makes a beautiful window plant, for though it be desirable to grow large specimens for greenhouses, they may be almost as safely pruned when used to it as a geranuim. "Ah!" says one of my cottage friends, "I should so like to have a nice camellia in my window, it would make such a beautiful centre, and then I could arrange my other favourites as wings; but then see the time I must keep it there before it flowers, though for that I should not mind so much, there will be so much pleasure in looking upon its swelling buds, and feasting in anticipation on the beauties afterwards to be unfolded; but what am I to do with it when it has flowered; I have no greenhouse in which to place it, no forcing-house in which to nurse it; all my glass, with the exception of my windows, are two lights, manufactured by myself!" All right, you will get on capitally; these auxiliaries in the shape of two light boxes, or brick or turf pits, however rudely made, are indispensable to those who would shine in window gardening. The best substitute for them is a window in the house, with a table or stage behind it, where you can keep all your plants that require coaxing and doctoring, and which are never seen but by intimate friends, who know your object, your sitting room window being thus chiefly occupied with the *results*. Without the box, without the spare window, you might manage your camellia, but then you must keep it longer in the window after flowering than might be desirable, until it had commenced its growth, and then you would require to set it outside close to the wall of your house in April and May, protecting it at night, and shading it the hottest part of the day with a cover of glazed waterproofed calico, or even oiled paper, until it was far enough advanced to be set in a sheltered place, there to stand until you want it for the window at this time next year. But with the box, every thing is easily managed. All you have to do is to take the plant to it shortly after it has finished flowering, and after you have pruned it, if getting too large. If there is a little sweet fermenting matter in the box, the camellia will like it all the better, but you must always have a little air on, and be careful the sun does not strike upon the foliage when it is moist. But, without artificial heat, the box will render good service merely by keeping the atmosphere moist and close until fresh growth is produced; and then the plant may be set out as before stated. The camellia would do without all this, and really it seems troublesome to be at so much pains about it, but the labour will not be half so much as you would imagine from my cumbrous way of telling about it; and then you must recollect that the same treatment we have recommended for the camellia will do for scores of things besides. If you can manage two plants, then we would advise the double red and the double white; if only one, choose the last, as it is the easiest to manage, and a beautiful gem it is. I have often thought that botanists, in their rage for changing names, might have exercised their ingenuity on the genus camellia, for, while we have rhododendron (from *rhodon*, a rose, and *dendron*, a tree) applied to a family bearing but slight resemblance to a rose, I know of no family more worthy of the appellation of rose-trees than fine double camellias, but, unfortunately, though possessing the beauty, they want the odour of the queen of flowers.

Our space is so nearly full that I can only allude at present to other matters, which, however, do not demand instant attention.

Propagating the Camellia.—This is generally done by cuttings of the single red made in August. Every wood-bud with a leaf attached makes a cutting; when strong enough they are inarched or grafted. If the latter, the two-light box, with a little fermenting matter, or a spare corner in a cucumber box, will just be the place for them.

Soil.—Equal parts of peat and loam will grow them admirably. If loam is used by itself, it should be of a light sandy nature. A little leaf-mould or dried cow-dung will improve the foliage, but if given plentifully the flowers will not be so abundant. When necessary we should prefer rich top-dressing, and using clear manure-water, when the plants were making their wood.

Shifting and Potting should be done just when the plants begin to push after flowering, or when the points of the shoots begin to harden after growth is finished. We prefer the first period for those intended to flower early in winter. Plants that have attained some size will bloom as well if merely top-dressed and not shifted every year, but then the drainage must be all right.

Watering.—Water should be given rather sparingly, as the glossy green foliage prevents very rapid evaporation, except when the plants are making their fresh growth and when the flower-buds are expanding, when a more liberal supply will be wanted. Sprinkling over the foliage when growing, and a little clear manure-water at the roots at times, will be very acceptable.

R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

House for Orchids.—Whenever a zealous cultivator of plants receives any from a foreign country, it is his first inquiry, "What are the temperature, the moisture, and the seasons of growth in the country from whence I have received these plants?" And, according to the information he may obtain, whatever source he may consult, whether books or travellers, or from knowledge he may already possess, he will treat his plants, as far as he possibly can, with heat and moisture similar to that from whence they have been transported. Now the orchidaceæ are a tribe of plants chiefly from hot tropical countries. The greater part of them grow on trees; some on the stems, others at the points where the branches start from the stem; a third group grow near the top of the tree, whilst some delight in its most shady part. Another point to remember is that the light of tropical regions is most intense, and that the days and nights are nearly equal. There is also in those countries a dry season and a wet season, and these alternate in some places more than once a year. Numbers of those plants, and some of the best kinds too, are found in more temperate climes. We have been assured by Mr. Skinner, a gentleman who resided several years in South America, that he has frequently seen hoar-frost on such plants as *Cattleya Skinnerii*, *Lycastes* of sorts and others, natives of that region. Bearing these facts in our minds, what kind of house or houses will be the best to grow these wonderful plants in? Now, as they require great light, we say that the house ought to be glass, so placed as to catch all the rays of light from the sun. A span-roofed one will do so, or, to the greatest degree; therefore, a span-roofed house necessarily will be the best form. As these plants grow on branches of trees, let the house be low in the angle, so that the plants, whether in pots or baskets, or on logs of wood, will all be near to the glass. The house, then, must be span-roofed and low. The next consideration is the aspect. We find the best is for the roof to fall due east and west; then the lengthway of the house will, of course, be north and south. There are several substantial reasons why this aspect is to be preferred. In the first place, the heat and light of the sun are more equalised. In the cold mornings of early spring the sun will sooner give light and heat on the east side, and will be at noon in such a position that his beams will be slanting to the angle of the roof, whilst in the afternoon his power to give light and heat will be considerably prolonged. Every plant in the house will thus have its due share of light and heat. During the hot months of May, June, July, and August, the shade or blind can be let down on the morning side of the house, drawn up at noon, and let down on the afternoon side just as the sun shines; thus giving the plants all the light possible, and at the same time protecting them, their leaves, and delicate flowers, from the burning rays of the sun. Now, suppose the house was a lean-to, as it is termed, that is, a glazed shed facing the south and leaning against a wall on the north, the sun would shine on this house with the greatest power in the middle of the day; the shade must be put on all over the roof at once, and for four or five or more hours the plants would be in comparative darkness. We think that every reader will perceive that the span-roofed, low, east-and-west house, must be, in theory, the best, and we have proved it so in practice.

A question may now arise, shall there be any upright glass at the sides or ends of the house? We say decidedly and advisedly—no! So to place glass is an unnecessary and, therefore, an useless expense. The walls ought to rise high enough to allow a comfortable walk and head room. The rafters and lights ought to be fixed, and to give air a few openings may be easily contrived in the highest part of the house, and a few sliding panels near the floor in the walls. This cold air ought to flow in over the hot pipes, and to become heated before it comes in contact with the plants. In summer, when there is no heat in the pipes, the external air is naturally so warm that no injury will accrue to the plants by admitting it into the house without being artificially heated. Before we quit our description of what we opine to be the best kind of house for these singular plants, we would direct our readers' attention to the desirableness, nay, almost absolute necessity, of having more than one for them. However small the collection may be, there will be some that require more heat than the others. The orchids of South America, such as Mr. Skinner saw growing, will flourish far better in a house of moderate temperature than in a house highly heated. This house we would distinguish by the name of "the Mexican house."

The orchids, natives of Java, Borneo, Singapore, the Phillipine Islands, and the hot jungles of Hindostan, require, on the other hand, a much higher temperature and close moist atmosphere. The house for these plants we would designate "the East Indian house." By having two houses a considerable number of advantages will be secured, although it might appear, at first sight, that in those countries from being always warm the vegetation must always be progressing; yet such, as is well known, is not the case. Plants in the hottest countries have a season of rest, and that rest is induced not by cold, as with us, but by drought excessive and long continued. We obtain this rest to our orchids by cold and drought combined. The Indian tribes, as soon as they have made their growth for the year, where there are two houses, may be removed into the cooler or Mexican house, and that removal or change of temperature will harden their pseudo-bulbs,[*] and concentrate the sap, causing them thereby to become more healthy, robust, and free to flower. Should any of the South American species require a little more heat, they could be conveniently removed into the Indian house to make their growth. The cooler house will also be useful to place any of the Indian species in when in flower, which change will considerably prolong their season of blooming. The two houses may join each other, divided by a partition either of brick or glass. We should prefer glass, as being neater and showing off the plants in both houses to greater advantage. The inside furnishing of the house, namely, the pipes and tanks, cistern for water, stages, and shelves, we must defer describing till next week.

FLORISTS' FLOWERS.

The Dahlia.—Frost has already, in some places, laid his blight upon this fine autumn flower, rendering them unsightly. It is almost a thing to be regretted that such fine flowers in perfect beauty should be blasted and blackened for ever in one night, requiring them to be cut down and consigned to the dunghill. We might here turn moralists, but we remember that on these themes our readers will rather look to the gentle, elegant pen of the authoress of "My Flowers." Our business is with the more dry and matter-of-fact part of practice. As soon as the frost has destroyed the flowers and leaves, take a spade and lift the roots gently up, taking care to be at such a distance as not to injure or cut the tubers; lift them up sufficiently to break off the young fibres. The reason why this ought to be done is to prevent those fibres drawing up any more sap, and by that prevention to stop any more growth which might take place, if the weather should continue open and mild, as it sometimes does till the end of December. Cut away all the decidedly destroyed branches, leaving the green leaves and shoots that may be uninjured a while longer. To prevent any frost from reaching the tubers, our practice is to cover up, about a foot diameter, the roots with some dry coal-ashes. By using this precaution there is no danger of any frosts that may come for the next month or six weeks doing any harm. This is better than taking up the roots immediately after the stems are frost bitten; the bulbs or tubers become more firm, and will keep better during the winter.[*]

Auriculas, Polyanthuses, Carnations, and Picotees, require plenty of air daily, and but little if any water. See the two preceding numbers for more full directions.

Verbenas.—Cuttings in store pots must be placed under glass now, to shelter them from frost and wet. Rare varieties in beds and borders should be pruned in, taken up, and potted, and treated the same as cuttings.

Cinerarias.—Some of the more forward may be removed into the greenhouse. The treatment for them there may be seen in the proper department of our pages. The rest will require strict attention to keep the frost from them, as they are very tender. Two degrees of frost will injure, and four degrees, or a temperature of 28°, will destroy the leaves entirely. So be particular, and keep them well covered up. Some might inquire, Why not place them in the greenhouse at once? But we would reply that a cineraria will thrive and keep healthy and more clear from insects in a pit or frame, than on the dry shelves or stage of a greenhouse.

Ranunculus.—Our amateur and cottage friends who cultivate this charming flower must not forget to prepare their bed for them; for though we do not recommend planting the best kinds till February or March, yet it is desirable to prepare the bed now. Some varieties may be planted at once, more especially the Turban, scarlet, yellow, and black. We will enlarge a little next week on these flowers.

T. Appleby.

THE KITCHEN-GARDEN.

Red Beet.—This being the season for taking up and storing this useful vegetable, care must be taken that neither the tap-root nor any of the strong roots should be injured or broken in removing, as not only would the colour of the vegetable be thereby spoiled, but its flavour as well as the esteemed saccharine properties of the beet would be lost. The leaves should not be cut, but twisted off when drawn up by the hand. Store the roots in a cool shed or cellar, or in a heap out of doors, covered with a coat of earth, and thatched. Beet may be preserved until the storing season comes round again.

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[*] *Pseudo-bulb.*—This term is used to distinguish those fleshy stems of orchids, which are something like bulbs, from the genuine bulbs, such as tulips or hyacinths for instance.

[*] The practice of Mr. Beaton and Mr. Appleby differ in the means employed, but in their object they perfectly coincide—ripening the tubers before storing.—Ed. C. G.

Brocoli.—If too luxuriant, cut round the plants with a spade to shorten the strong roots, or take up the brocoli carefully at once, and remove it to some sheltered situation where it may with convenience be slightly protected when the frosts set in. If the latter plan be adopted, the ground thus cleared should have some manure wheeled on to it, and be thoroughly trenched up into good rough ridges or sloping banks, so that it may receive all the beneficial influences of the weather throughout the winter months.

Cauliflowers.—Those who have the means should make a final planting out under hand-glasses about the 21st of October. Choose a good open quarter in preference to that of a fruit-tree border, where too many people are apt to place their hand-glass crops of cauliflower. Instead of doing so, choose an open quarter, and let the ground be well manured and trenched in at least two feet deep, if this has not been already done; work it well, and, after making the surface level, line it out neatly, so as to have the rows in line every way; let the rows be four feet apart from row to row, and the plants three feet apart in the row. Two feet wide paths and two feet wide beds will give four feet in the clear between the rows, and then if the wish be to give the work a little neater appearance, throw up a few crumbs from the paths, and make the edges true, and chop it out by line. The ground being ready, insert your plants four or five together under each glass, choosing some of the best and strongest from your nursery-beds; lift them up with a little care, so as not to hurt their fibrous roots more than can be helped. This being done, put on the glasses, and let them remain on for three or four days, after which give a little air by tilting the glasses up on the south side with a small flower-pot, or a half brick, for six or eight hours every day; and after this, any very fine warm days, the lights may be taken quite off about nine o'clock in the morning, and put on again at three in the afternoon.

Kidney Beans.—The cottager during his dinner-time, of a nice fine day, should look after all his garden seeds, particularly now his *scarlet runner* and *dwarf kidney beans.* Before he pulls them up, or in doing so, he should collect all the ripest pods, and dry them off well before he stores them away, and when quite dry, without being taken out of the pods, they may be put in a little old hamper or box, and preserved in some dry place.

Mushroom Beds should be looked to, to see that they are going on well. If the surface be found too cold, add a thicker covering, which will draw up the heat of the beds; and if the beds should be too hot, reduce the thickness of covering a little; the temperature should range from 50° to 55°.

Carrots.—The principal crops will now have become pretty generally fit for storing. Do not place too many together, as they are liable to ferment, and if the injurious effects of too close packing should not immediately become apparent, yet at the season when this vegetable is most in request with the good old English fare, the roots will be found partially decayed, woolly at the core and flavourless. Our practice is to store them in narrow stacks; if in a dry shed, we put some dry sand amongst them; if in a close shed or cellar, we then put no sand, but place a little brushwood to prevent their getting too close together.

Endive.—This vegetable may be bleached so simply, and in so many ways, that it should now be at once attended to, as white frost or damp weather is liable to injure the large or full-grown plants. Take up a quantity on a fine dry afternoon, and place them in a little dry sand; the floor of the fruit-room or cellar, or in some dry shed, any one of which situations are good for the bleaching of endive, with a very little trouble. Successions of late plants should still be planted on dry healthy borders or sloping banks, for a late spring supply.

Horseradish.—Trenching out should now be commenced on one side or end as the rows go. First have ready a good quantity of manure. If the soil is stiff, leaf-mould, road-grit, cinder-ashes, and charred materials are all excellent for trenching in. The ground should be again planted as the trenching proceeds. Our practice is to trench two feet deep, forking up the subsoil, and letting it remain loose, and trenching the ground into rough ridges at the foot or bottom of each row; at the very bottom of each row we place at one foot distance from each other the tops or crowns of the horseradish, and any crooked or inferior forked plants entire, ready for the next crop, as we find the stronger the plant the finer will be the next produce. By these means the rows are two feet apart, and the crowns or plants are not too deeply buried, as they, of course, are between the ridges, which are not levelled until the plants are making their appearance in the next spring or summer, and then they are gradually hoed or forked down amongst them.

Jerusalem Artichokes are not yet in full season, and are therefore best left in the ground until after Christmas, as the tubers will continue to swell until that time. The surface of the soil should then be protected with a thin coat of leaves or refuse of any kind, and their own stalks should be placed over this, to prevent its being scattered by the wind. Take up the bulbs as required.

Routine Work.—Keep all yellow and decayed leaves well cleared up from amongst your *cabbages* and *coleworts.* Watch for every opportunity of surface-stirring the soil, not only for the sake of keeping up a healthy appearance, but also to reduce the number of slugs, for which pests traps also should be set, as before recommended, with new brewer's grains or bran. When so collected, early in the evening, turn the slugs to useful account by killing them with quicklime, and digging them into the ground. Collect now all kinds of *leaves,* as well as any *vegetable refuse* that cannot be turned to better account, and add them to the manure pit, throwing all drainage continually over it. When the full crop of leaves are down, and those of the oak, beech, and Spanish chesnut are obtainable, these may be collected on some fine day, and be stored away with great advantage for pig or cattle litter or beds.

James Barnes & W.

MISCELLANEOUS INFORMATION.

OUR VILLAGE WALKS.

(No. 2.)

What would England be without her villages? They are her beauty and her pride; for they speak eloquently of peace and security, of domestic happiness among the poor and lowly, and of social ties that bind man to man for common help and comfort. Even large and thriving towns do not express this half so clearly; we must visit the quiet, secluded villages, far from the bustle and noise of towns, to judge of a nation's real prosperity—and England's villages tell us, on the whole, a cheering tale. Some look more dirty and neglected than others, bearing the stamp of that deadly snare, the beer-house; but these, I trust, are few compared with the number spread over England's surface. In almost every parish we find a village, or something like one—a clustering together of men—and I have scarcely ever seen one that does not possess some picturesque or interesting feature. There is always a church standing calmly by, as if to still "the madness of the people," and calling them continually to prayer and praise. What a solemn and beautiful sight is a simple primitive British church! We gaze with delight on a scene of nature only, where the eye ranges over earth, and water, and trees, and sky; all is so pure and good as if sin had not blighted it; yet, when a little column of smoke rises from among the trees, or we hear the deep bay of the watch dog, or the toll of the church clock, warning us from its hiding place of the flight of time, what an involuntary interest springs up at once in our hearts. There is a cottage! or a farm! or a nestling hamlet within those sheltering trees! and such simple sounds add many charms to the beauty of the landscape. There is in our hearts, implanted by God, a love for our "kind;" and although sin has caused man to be "a murderer from the beginning," and we "bite and devour one another," still, yet we should not be happy alone. Feeling this, let us strive, "as opportunity offers, to do good unto all men;" and how much of the bitter of life may thus be done away.

I like to see a village interspersed with hedges of elder. It is a most valuable tree—so much so, that Boerhaave, the great Dutch physician, never passed one without raising his hat. Let us raise our hearts to God, who has caused so many plants to spring up around us that are good for food and medicine. The elder is a native of England, but grows in many parts of Europe also. It thrives in every kind of soil, on the banks of streams and ditches, and on old walls and ruins; thus marking the tender care of our heavenly Father in making so medicinal a tree hardy and adapted for every situation. Cottagers should encourage it, for it is good in every season and useful in every part. The leaves are excellent for sores and external inflammation. The flowers make an invaluable ointment for man and animals, and every farm-house should have an ample store. It is very simply made. Simmer equal quantities of the flowers and fresh lard in an earthen pan placed in a kettle of water over a moderate fire for four or five hours, then strain it through a sieve or cloth into small pots, but do not squeeze it, or a liquid will remain below the cold ointment and ooze through it. This once happened to myself, and although I pierced the ointment and poured out the liquid, it was not so firm or good as it would otherwise have been. Sprigs of the elder will make good ointment, if the flowers are required to remain for fruit, but it is not so fragrant. Elder flowers cut from the coarser stalks and carefully dried are excellent for disordered stomachs when made into tea and drank freely. This tea is also good for erysipelas and eruptions of the skin. The inner bark is fine in cases of dropsy, boiled in milk and water in the proportion of three handfuls to a quart, and simmered till it is reduced to a pint. Half a pint should be taken at night and in the morning, and repeated ever day. Elder-flower water is cooling to inflamed eyes and pleasant to the skin; its very scent is refreshing and reviving. And who does not relish a glass of warm elder wine on a cold frosty day? It is a harmless and acceptable offering to a friend, when more expensive hospitality cannot be indulged; and it is very excellent indeed even when drank cold. If a cottager's wife could contrive to make but a couple of bottles of this wine she would find it very useful in the cold severe nights of winter, if her husband returned home wet and shivering at a late hour. A cup of hot elder wine would warm and comfort him far more than the unwholesome beer sold to the poor, and which many of the labouring class rarely drink *at home*. Elder berries are destructive to poultry, and bees are said to dislike the tree. I have often seen bunches of the leaves hung upon the bough from which a swarm has been taken, to prevent their settling there again. There is a sort of fungus sometimes found growing on the trunk of the elder, the inside of which is black, and the outside inclining to white. This is said to be an excellent remedy for sore throats and quinsies, but I cannot discover the way in which it should be applied; very possibly it should be laid warm on the throat, but this I cannot venture to assert. The season for gathering the fruit is quite like a little vintage where it grows plentifully; and the black clusters look almost like wild grapes, bending down from the weight of the ripe berries. A hedge of elder might be planted in many gardens; and if the poor could earn a shilling or two by selling the flowers or fruit they would turn to good account. There is often a great lack of management among cottagers—a disinclination to try new plans, and neglect of many little sources of profit by which they might benefit. In some of "our village walks" we may give our poorer neighbours a hint or two from personal observations that may be of use to them; although I well know how difficult it is to do anything when work is scarce and money comes slowly in. To be thrifty we must have something to economize with; yet in my own immediate neighbourhood I *know* that the poor do actually prefer shivering with cold, and picking up sticks, or stealing wood, to cutting turf from a common close to their own doors and storing it up for winter use. This is a striking proof of idleness and wilful negligence, and such instances make us sometimes feel vexed and hard-hearted. Yet let us remember the "mote" and the "beam," and gain from our daily observation a hint for *our own* use. Is there not a heavenly Friend seeking *our* welfare, and grieved because we hew out for ourselves "broken cisterns that can hold no water," when the "fountain of living waters," close to our lips, is forsaken? Do we not choose rather "to drink the waters of Sihor," or even to perish with thirst? Let us have pity for the ignorant and foolish, as God hath pity for us; and let every instance of human corruption around us strike and convict our own rebelllious hearts.

NEW PLANTS WORTHY OF CULTIVATION.

Wistaria sinensis var. *alba*.—This white variety was introduced from China by Mr. Fortune. Its blossoms are not so beautiful as those of the lilac-flowered, but may have a pleasing effect when blended with the latter.—*Journ. Hort. Soc.* iv. 221.

Cœlogyne asperata (*Rough Cœlogyne*).—Is the finest of the genus, a native of Borneo, bears spikes of noble, fleshy, pale cream-coloured blossoms, three inches in diameter. It requires to be grown in the stove.—*Journ. Hort. Soc.*, iv. 221.

Freckled Mormodes (*Mormodes lentiginosa*).—This orchid is also a native of central America, and, like the preceding, introduced by Mrs. Lawrence. Its flowers have purplish stains on a yellow ground, and sprinkled all over with small dots. It blooms in April, and requires to be potted in loose turfy peat. In winter keep it rather dry, and in the dry stove; but in summer with the usual moisture and heat of the orchideous-house, and near the glass.—*Bot. Mag.* 4455.

Pinnate-leaved Epimedium (*Epimedium pinnatum*).—This "most lovely little hardy plant" is a native of shady woods in the mountains of Persia and the Caucasus. Its flowers are bright yellow, with a crimson spot at the base of each petal. It is increased by root division, and may be grown either in the border, or in a pot like other herbaceous alpines.—*Ibid*, 4456.

Mimulus tricolor (*Tricoloured Monkey Flower*). An annual brought by Mr. Hartweg from California. Prevailing colour of the flowers pink, but each lobe of the corolla is spotted with crimson at the base, and stained with yellow along the lower lip. It appears to require the treatment bestowed upon half-hardy annuals.—*Ibid*, 222.

TO CORRESPONDENTS.

Trough on Flue (*T. D. P.*).—You had better have a shallow pan of zinc made to fit the top of your flue, or a small portion of it, and this will be sufficient to keep the air of your pits moist. Do not sow your *fuchsia seed* until next March or April. See p. 20 of our last volume.

Arnott's Stove for Greenhouse (*R. W. H.*).—That described in our first volume, p. 280, would answer well for your greenhouse, 20 feet long and 12 feet wide. An iron stove, such as *Walker's self-feeding stove*, would answer your purpose, if the fuel was put on last thing at night in the winter, and you had a trough for water on the top. We should plant two *climbing perpetual roses* to train along your bridge, *Felicite perpetuelle*, creamy white, and *Madame Plantier*, deep rosy hue.

Wintering Fuchsias (*J. T., Aberdeen*).—If you will refer to the Index of our last volume, you will there find references to all the information you require. For instance, at pp. 347 and 328. Leave off *watering your cacti* and keep them dry and cool, but free from frost all the winter.

Wintering Plants in a Frame (*G. Jones and C. P., Brixton*).—You can keep your plants in a frame plunged in coal ashes; admit air every mild dry day, and keep the glass and sides thickly covered with straw and mats during frost and at night. Do not move your *heartsease cuttings* until early in the spring, as they are only just struck.

Waste Water from a Steam Engine (*Carolus*).—This would do excellently for making liquid manure with, and would recompense you for your outlay. There is no mode of distributing it but by hand, or by an open gutter of various lengths, to trenches made between the rows of your crops. Do not apply it until growing time in the spring arrives. Watering your potatoes will not answer; never put manure to them; grow them on ground which has been manured for other crops. Never mind your autumn-planted crops being deficient in quantity; "they are sound," you say, which is better than a great bulk diseased.

Cuphea platycentra (*J. S. L.*).—This is the name of your flower. It will not live in the open border through the winter. Pot it immediately. See what is said at p. 147 of our last volume, and at p. 24 of our last number.

Natural Phenomena (*Veras*).—You say that our daily statements of these, such as "birch leaves yellow," &c., are "not founded on fact." Now, if you will keep memoranda of how many days we are wrong, that is, how many days later or earlier each event occurs than is stated in our Calendar, you will be doing a useful work. We only profess to give the average time at which each occurs, and we will tell you to-day, in an editorial, how much these events may serve as guides for the gardener.

Wintering Calceolarias (*J. W. R.*).—We shall say more about these soon, but in the meantime observe for your guidance that the great enemy to calceolarias in winter is damp, when grown in pits and frames without the means of dry heat. Where a dry heat can be occasionally given, there is no difficulty in keeping them over the winter. In a frame or pit, the plants should stand higher in the pot to escape the damp; it is an easy matter to sink them when shifting in the spring: and every opportunity should be taken to let a stream of air amongst them. The subject will be fully treated on in a succeeding number.

Peach-house Converted into a Greenhouse (*Carrig Cathol*).—So far as you have given a description of the upright peach-house, which you have transferred into a greenhouse, we see nothing to prevent it answering extremely well but for one thing—the omission of a stove. Instead of being fearful of having too much heat in winter, because the sun strikes powerfully upon the upright glass, we should be more concerned about not having enough when there was no sun at all. The muffling of the glass with glue and whiting might be requisite in spring, but would be of little use in winter if you wished the plants to grow. If, however, you merely wish to keep deciduous plants alive until the spring, then the process might be useful, as tending to promote an uniform temperature. The canvass blind to which you refer would be useful in spring and summer for keeping out heat, and in winter for keeping out cold; but for the latter purpose you would require, in addition, wooden covers, straw hurdles, or mats, to cover the glass with in cold nights. You would, after all, keep the roses and fuchsias in such a house with more difficulty than you would preserve the former in a cold pit, or even plunged out of doors, with the tops nearly covered with moss or fern; and the latter if merely kept from the frost in a cool shed. The reason of this is, that the house being fully exposed to the south, the plants will be excited in mild sunny weather, only to be nipped when it is very cold and frosty. Without artificial heat, therefore, we do not consider your house so good, for mere protection, as a pit or close shed; though, as it is, it would answer admirably for growing plants after March. Having put up a stage, we would strongly urge the possession of the means of heating, and then you may have anything you choose that will thrive under greenhouse temperature. The Cloth of Gold, or any of the tea-scented, roses, would do very well on the wall above the highest shelf of the stage, provided the sashes move to give it plenty of air in summer; and the *Cobea scandens*, the *Passiflora cærulea*, and *Jasminum revolutum*, would stand the winter without heat. With heat, the *Mandevilla suaveolens* and the *Tecoma Jasminoides* would answer very well, and both are very beautiful. If, without covers for the glass frames, you set the plants on the stage, keep them almost dry during the winter; the less they grow the better. In cold weather, however, we should prefer setting them all on the floor of the house, and then, if not very large, you can throw mats over them. By this means we frequently keep many things in a glass house without heat; but then they don't have much the appearance of greenhouse plants during winter.

Plums (*J. H., Liscard*).—You ask whether you may plant plums and autumn-plant *potatoes* in a heavy clay, manuring with night soil? You may plant plums, but refer to our back numbers for advice as to clay eysoil. They must be planted nearly or quite on the ground level. Read about soils and subsoils in a recent number, and see what we say about the improvement of the staple. We recommend autumn-planting of potatoes on 'sound soils and done with discretion, but in land like yours we would have a winter fallow, and keep the potatoe sets in earth until February. Do not use night soil, nor any other manure, as the land is an old apple orchard.

Fern Manure for Vines (*T. W.*).—Vines like good manure; fern does not make such rich compost as straw. We should, nevertheless, not fear to use it. The prime secret of vine growing does not, however, lie in the manure; it is in thorough drainage, and securing, by ameliorating processes, a proper mechanical texture in the soil. Look to our articles on the improvement of staple, also Mr. Fish in an article a few weeks since.

Gooseberries and Currants (*J. Wilson*).—Your currant and gooseberry bushes should be nearly six feet apart. The Red and White Dutch currant, and for black the Black Naples. As your ground is so limited, plant well-known bearers in the gooseberry way—such as the Old Crown Bob, the Aston seedling (alias Warrington), the Whitesmith, &c. &c. Do not part with your apple trees without due consideration, especially if they are thriving. If you will have pyramidal currants, you must start them with a strong stake; but why pyramidal? We could train them punch-bowl fashion, and take as little room as your pyramids.

Wintering Cuttings (*J. Stewart*).—Your cuttings struck this season of fuchsias, petunias, alonsoas, verbenums, and other soft wooded plants, or from any tender plant, cannot be kept over the winter without light, moisture, and as much heat as will save them from frost. "Smithy ashes," or, as we say in England, ashes from a blacksmith's forge, is a good thing to plunge such pots in down to the rim, in a box that would fit a window sill. If you keep the frost from them that way they will do. *Cuphea platycentra*, if an old plant, will live out the winter plunged in sand or light earth like fuchsias. The *Lechenaultia formosa* will require a good window in a room where a fire is kept.

Heaths (*John Paul*).—Your memory is not at fault. Mr. Beaton did promise a chapter on potting heaths, and you shall have one long before heaths will need potting. In the meantime, do not syringe them till after the middle of next May; and if the mildew threatens you, put the infested plants aside from your stock and dust them lightly with sulphur. McNab's treatise is, perhaps, out of print; the price of it was about 2s 6d. "Large shifts" is only safe with good gardeners. Heaths in No. 4 or No. 2 pots will not require shifts but once in four or five years. A list of the best heaths will be given early in the spring.

Seedling Pansies (*A. A. Clericus*).—These are better kept in the pots where you have raised them, to be planted out next February.

Contrasts of Scarlet and Blue (*Ibid*).—*Nemophila insignis*, to contrast with scarlet verbenas, should not be sown till the last week in April, and then the contrast will only hold good for six weeks—say from midsummer to the end of July. If you could make a bed of the blue *Campanula carpatica* next April, it would last to the end of September; and though not so gay as the nemophila, is more useful. Verbenas, for a scarlet bed next summer, should be got by cuttings last September or next February, and be protected from frost, and planted out about the middle of May.

Seedling Carnations (*Ibid*)—Planted out early in the autumn, will stand the frost, in your exposed situation, without protection.

Scarlet Geraniums (*W. Goodman*).—In taking Messrs. Fraser, of Lea Bridge-road, as your model, you have done well. Unless your beds are very rich on a damp bottom, scarlet geraniums will flower in them better out of pots. It is only the florists' pelargoniums that are bedded in their pots, to curb their free habit of growth. Messrs. Fraser grow their plants generally better than others, and having them in pots they are more convenient for their orders.

MANETTI ROSE (*Oxoniensis*).—Mr. Rivers, of the Sawbridgeworth Nursery, Herts, introduced the Manetti rose from Italy a few years since, and it has turned out as a stock all that was expected. Apply to him for the information you require. We will answer about your *Tigridia pavonia* next week. Your treatment is very judicious.

WINTERING YELLOW CISTUSES AND CHINA ROSES (*Flora*).—There are several yellow cistuses very beautiful plants; they often live out the winter in dry sheltered situations; but we should be loath to trust any of them to the rigours of a hard winter unprotected. Some dry leaves, litter, or coal-ashes, spread round them to the depth of four inches, and a dry mat, or a bundle of dry fern or straw placed over them in hard frost, are far better than transplanting them into pots so late as this. Turn your "monthly roses" out of the pots into the bed, and if they are not quite young they will take no harm; but, to be safe, place a few dry leaves round and amongst them, merely to break the force of cold frosty winds.

VAN THOL TULIPS, &c. (*Consols*).—Plant your Van Thol tulips two inches deep in the front row of your bed or border now; place the yellow ones behind them, and nine inches from them, and the Tournesol in the middle. The Van Thol is red and white, the Yellow is just yellow, and the Tournesol red and orange. They will flower next April. Your "leaky greenhouse" is a bad place for soft-wooded plants, but you must try them in it. You can keep old *petunias* if they are *now* established in pots, not otherwise. The *penstemons* will live out of doors, unless your soil is very wet and the winter very hard. The *Ageratum* is a greenhouse, or frame, or half-hardy plant, but is very easy to move into pots at any time; and if you take it up carefully, it will probably flower all the winter even in the leaky house.

MANDEVILLA SUAVEOLENS (*M. E. L.*).—It is four feet high, has not flowered, and is in a border under a south wall, where it was planted in June, and you ask whether it should be allowed to remain? It is more safe to take it up this season, being so young; pot it, and let it lose its leaves by keeping it half dry in the greenhouse. Cut it down close early in March, and plant it out next May; after that you may keep it out in winter, with a good dry covering in frosty weather.

BOTTOM HEAT BY HOT WATER PIPES (*T. F.*).—In the plan you refer to as described in our first volume, the whole of the bottom of the pit must be covered. Perforated iron will do for the covering instead of slate, but will require more support, and will only last for a short time. Cucumbers can be grown well in such a structure. We cannot tell what sized pipe you will require for your pit, unless informed of the purposes for which you intend it.

BEGONIA (*Ibid*).—The common old begonia is very easily grown, but yours, the leaves of which are continually falling and the plant shrinking, must be one of the stove species, and unless we know which we cannot advise you safely.

EARWIGS IN GREENHOUSE (*W. D. P.*).—Place some dry hay in very small pots, and set them about on their sides in secret corners; the earwigs will enter them for the day, when you may destroy them.

PRUNING VARIOUS PLANTS (*Ibid*).—Do not cut down your *Maurandya Barclayana*, *Lithospermum Hendersonii*, and *Cobæa scandens*, but prune their side branches only to two joints now, and reduce the top or leading shoot a little. *Passiflora Herberti* and *incarnata* flower, on the current year's growth, cut in their side shoots now to the last bud nearest the old wood. *Clematis azurea grandiflora* cut down to a strong prominent bud next February. How low down depends on its age and size. *Amaryllis longifolia* and *Lilium japonicum*, which have not flowered, must both be allowed to get dry now; then pot the Lilium, and the Amaryllis next May when in full growth.

PLANTING (*Glan Mor*).—Have this all performed before Christmas. We cannot recommend any work upon forest planting; they are all at variance, and most of them fallacious guides. We cannot advise you as to the trees to plant, unless we knew whether your object is beauty or profit.

DATURA (*Ibid*).—You ask for information relative to this plant. The datura is a strong soft-wooded greenhouse plant, which flowers annually in the autumn on the young wood made the same season; therefore it should be close pruned any time in winter or spring. It is a thirsty plant while growing, but if an old plant, may be kept quite dry while at rest, or during winter. We believe Mr. Beaton will treat of it as a flower-garden plant. It is always best to water at the top of the pot; one requires good experience to trust to watering by "feeders."

SOIL FOR BULBS (*Mrs. Vibgyor*).—A query respecting "all kinds of bulbs" is a wide question, but of course you mean all kinds of common hardy spring-flowering bulbs. Nine-tenths of these will do well in the soil we recommended for hyacinths. *Double anemones* of sorts would prefer a stronger soil, however. We shall always be glad to hear from you and assist you after the frank avowal of your address: we like frank people above all others.

TROPÆOLUM AZUREUM (*E. B. S.*).—We believe this may be treated after the way Mr. Beaton recommended for T. tricolorum, but we were so disappointed with the plant on its first appearance that we resolved never to grow it, and we have not seen a good specimen of it at any of the London exhibitions. You need not hesitate to treat all the bulbous Tropæolums in that way.

GROWING BULBS IN MOSS (*C. J., Peckham*).—The double Roman narcissus can be so grown. Hyacinths ought to be just covered with moss, and no more; you may even leave the very tops a little bare. People say ours are "nestled" when they see them. Let the superfluous water escape from hyacinths, and all other plants in pots, by all means.

FIG-TREE BORDER (*J. H. W.*).—You do not like this looking "so bare," but you must bid farewell to figs if you plant evergreens in the border over the roots of your fig-tree. We would rather turf the border, or keep it covered in summer with some weak-growing annuals, such as the Nemophyllas, Virginian Stock, Venus' Looking-glass, &c.; but if you *must* plant evergreens, use the very strongest, in order to destroy the fig at once—laurels, hollies, or laurustinus, will do that. If you prefer a slower process, plant some evergreen Berberis over it; they are very handsome, and you can keep them low by cutting down the centre shoots in May after they are done flowering.

MANURE (*A. T. B.*).—Spent tanner's bark mixed with rotten dung is an excellent compost for some plants, and would kill others. You must ask this question again in a definite shape, and name the plants to which you intend to apply it. You only said "to any plants."

SOIL FOR BULBS (*Ibid*).—The scilla and the hyacinth will do equally well in the same soil, but ixias do better in peat earth. The different *cuttings* you name will do equally well under the same treatment, but you must not let them get quite dry. Mr. Beaton has said that all *half-hardy plants* may be saved in the ground over the winter, treated as he recommends, if they are worth so much trouble. *Low plants at the bottom of a pit*, four or five feet from the glass, will not live to see May-day. Place a stage of some sort in it, to bring them near the glass. Two thicknesses of matting will not keep out frost from a pit, but a foot of dry straw over one mat will, if the sides are equally safe. Auriculas, carnations, and Indian pinks, are better under glass, certainly, than covered up in the open border.

FIBRES OF PEAT (*Ibid*).—This does equally well, if not better, for potting purposes if you pack it close down upon the drainage.

GARDENER'S APPRENTICESHIP (*Carolus, Stratford*).—You offer to give £10 or £20 for a three years' apprenticeship to any gentleman's gardener who would be willing to allow you 8s a week. You had better apply to some head gardener. We know that some of the best nurserymen refuse to be bound to any one for three years, and consider a young man wastes his time to come into a nursery until he has served under a gentleman's gardener.

SHELTER FOR GERANIUM CUTTINGS (*A. L.*).—Your glazed structure will do for this purpose, but it must be well protected with straw, &c, to keep out frost. We have said all that it is possible to say upon this subject to various correspondents, and in our weekly essays. We wish our readers would refer to our indexes. Your use of *sheets of gutta percha* for sheltering flowers is good. You will see a form very like yours at p. 220 of our last volume.

MUMMY WHEAT (*E. G. H. Kinsoll*).—Our correspondent wishes to know where he can obtain a few grains of this wheat, depicted in "The Illustrated London News" of last September 22nd.

IMPROVING SANDY SOIL (*Cogitatus*).—You cannot do better than put on the whole of your clayey compost at once. Do not mix your cow-dung with it now, but keep this until cropping time in the spring. We should put on the compost, trench the ground, and ridge it up for the winter's frosts to crumble down the clay, and help to mix it thoroughly. You can remove your four-year-old *asparagus* plants about April, injuring the roots as little as possible. All that you need do in making the bed to receive them is to trench it two feet deep, and mix with the soil throughout as much of the richest manure that you can procure.

ROUGH GLASS (*G. H. H.*).—This, in the roof of your greenhouse or hothouse, will not impede the ripening of the grapes. If it is one-tenth of an inch thick it will defy hailstones, and answer your purpose in other respects.

GUERNSEY LILY (*G. G.*).—Any very light soil will do for this, but see what we say at p. 12. Your bees were not stupified; saltpetre does not act upon bees as does tobacco or fungus when burnt. This was the only cause of your bees fighting after being united.

PLANTING POTATOES (*W. E. H.*).—We cannot be more explicit than we have been. Plant in November in a soil that has been manured for the previous crop, and do not add manure either at the time of planting the potatoes or at any time afterwards. Plant early ripening kinds only.

NAMES OF APPLES (*M. R.*).—We do not know the *Beausberry Pippin*. The *Bayfordbury Pippin* is the same as the Golden Pippin, which we all know is a yellow, roundish, small fruit. *Heywood's Pippin* is unknown to us by this name.

MOVING PRIVET (*A. S. W.*).—Your privet hedge, though six feet high, may be moved with a good chance of success if done in November; great care being taken to injure the roots but little, and if, by stakes and rails pressing the plants on each side, they are kept from wind-waving until well rooted next year.

LIST OF FAIRS (*R. F. W.*).—You will find a very full one in the *Farmers' Almanack*.

NAMES OF PLANTS (*M. S.*).—No. 1. Tecoma capensis. 2. Coronilla glauca. 3. Some kind of Stapelia. 4. Crassula, but what variety cannot say, nor could any one from such miserable specimens. 5. Ixora alba. (*Crucifera*).—Yours is Knight's Improved Wrinkled pea. We will keep your other wishes in mind. (*J. J.*)—We cannot make out from the twigs enclosed the name of your shrub or tree. It seems to be of the lime tribe. Does it grow in a pot or border? What kind of blossom does it bear? What is its native country? Merely sending leaves is usually like asking one to tell the name of a ship's captain from seeing a chip of its mast.

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WEEKLY CALENDAR.

M D	W D	OCTOBER 25—31, 1849.	Weather near London in 1848.			Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
25	Th	Crispin. Short-eared Owl comes.	T. 56°—31°.	W.	Rain.	43 a. 6	45 a. 4	morn.	9	15 48	298
26	F	Whitethorn-leaves fall.	T. 61°—38°.	S.	Rain.	45	43	0 4	10	15 54	299
27	S	Wild Geese come in flocks.	T. 56°—43°.	S.	Rain.	47	41	1 11	11	15 59	300
28	Su	21 S. aft. T. St. Simon & St. Jude.	T. 54°—37°.	S.W.	Rain.	49	39	2 20	12	16 4	301
22	M	Red-currant leafless.	T. 53°—31°.	S.W.	Rain.	50	37	3 32	13	16 8	302
30	Tu	Woodcock arrives.	T. 56°—32°.	S.W.	Rain.	52	35	4 47	14	16 11	303
31	W	Elm-leaves fall.	T. 56°—38°.	S.W.	Rain.	54	34	rises.	🌝	16 14	304

Crispin and Crispianus were brothers, born at Rome, and beheaded at Soissons by its governor, Rictionarius, when he found that they had travelled thither to propagate Christianity. There is a Kentish tradition that they were buried near Lydd, in that county, and a heap of stones on the beach there, near a place called Stones End, is shewn as the monument of their interment. Following the example of Paul, and others of the apostles, they adopted a trade, that they might not be burdensome to their flocks. The two brothers learned the art of shoe-making, and hence became its patron saint. An old romance relates that an exiled prince named Crispin also became a shoemaker for subsistence, and that thence the trade became known as the *gentle craft*—the French term *gentil* having reference to nobleness of birth.

St. Simon and St. Jude.—These apostles have been jointly commemorated since the year 1091. It is believed they were the sons of Joseph—the husband of the Virgin Mary—by a previous wife. That they were the reputed brothers of Jesus Christ appears from this verse: "Is not this the carpenter's son? Is not his mother called Mary, and his brethren James, and Joses, and *Simon*, and *Judas*?" (Matt. xiii. 55.) There are several authorities which shew that our forefathers expected that it would invariably rain on this day, and our present meteorological calendars demonstrate that the expectation was not altogether groundless.

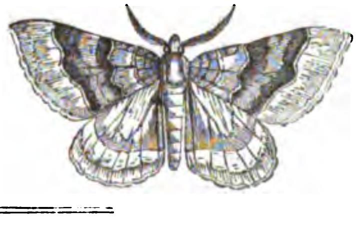
Meteorology of the Week.—The average highest temperature during the above seven days, from observations made during the last 22 years, is 54.2°, and the average lowest temperature 38.4°. The highest temperature observed during the period was on the 30th of October, 1833, and the lowest on the 28th in 1836, when the thermometer fell to 23°. It rained more or less on 73 days of the 154, and the greatest quantity of rain falling on any one of the days was 1.06 inch. We must guard our readers from concluding that in districts where the greatest amount of rain in inches falls that there the climate is most damp, and it would be an equally erroneous conclusion for any one to think that where there are the greatest number of rainy days that there the amount of rain is largest: the contrary is usually the fact. At this period it is very usual for long successions of heavy rains to fall, and consequently for the most violent floods on record to occur. The greatest flood of the middle ages, during which the Severn overflowed, was at this time of October in the year 1483. For many years after it was always mentioned as "the year of the great waters."

RANGE OF BAROMETER—RAIN IN INCHES.

Oct.		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
25	B.	29.234	29.623	29.464	29.853	30.318	29.864	30.283	29.652
		29.061	29.333	29.391	29.760	30.176	29.687	29.939	29.163
	R.	0.01	0.72	—	0.03	—	0.08	—	0.02
26	B.	29.460	29.625	29.614	30.096	30.321	30.149	30.366	29.861
		29.318	29.572	29.479	29.917	30.230	29.968	30.343	29.812
	R.	0.11	0.02	—	—	—	—	—	0.08
27	B.	29.465	29.691	29.730	30.252	30.113	20.260	30.341	29.488
		29.406	29.677	29.440	30.237	30.060	30.136	30.331	29.280
	R.	0.92	—	0.17	—	—	0.01	0.22	0.39
28	B.	29.820	29.942	29.380	30.209	30.069	30.211	30.315	29.594
		29.601	29.743	29.100	30.129	30.036	30.109	30.273	29.488
	R.	0.10	—	0.02	—	—	—	—	0.34
29	B.	29.818	29.807	29.640	30.053	29.970	30.028	30.207	29.511
		29.766	29.770	29.620	29.912	29.859	29.971	30.167	29.493
	R.	0.09	—	0.16	0.28	—	0.01	—	0.01
30	B.	29.776	30.158	29.410	29.821	29.966	30.130	30.282	29.528
		29.721	30.101	29.190	29.808	29.884	30.102	30.106	29.498
	R.	0.06	—	0.38	0.02	—	—	—	0.07
31	B.	29.877	30.234	29.440	29.812	30.159	29.131	30.239	29.566
		29.798	30.223	29.390	29.687	30.118	30.071	30.085	29.545
	R.	0.19	—	1.62	—	—	0.01	—	0.12

Natural Phenomena Indicative of Weather.—*Butterflies* appearing early sometimes are the forerunners of fine weather. *Moths* also intimate the continuance of fine weather if they are numerous during the evening. *Calms* often precede violent gales, and the calmest and clearest mornings sometimes are followed by a blowing showery day. Thus, too, there are a few degrees of latitude to the north of the equator which seamen endeavour to avoid, for though they are proverbially known as "The Calms," yet it is the region of the most violent thunder storms. *Candles* often prognosticate truly the occurrence of foul weather by flaring, snapping, burning unsteadily, and having their wicks loaded with what are often called "funguses," all which phenomena are explicable upon chemical principles. The combustion or burning of the tallow is more perfect when the air is dry and warm than when it is moist and cold.

Insects.—Flying about mallows, lavatera, and hollyhocks, may now be seen occasionally, for it is rather a rare insect, the large Mallow moth, *Larentia cervinaria* of some naturalists, and *Geometra cervinaria* and *G. clavaria* of others. It measures nearly two inches across its expanded fore-wings. These are reddish brown, banded with dark brown, and these bands edged with white, as shewn in our drawing. The hind-wings are pale brown, with bands of darker brown, and edged by a white line. This moth lays its eggs on the plants we have mentioned, but chiefly on the two first named. The caterpillars are found in June and July; they are dull green coloured, with darker lines of the same down its sides, and dots of white across.



Continuing our observations upon the probable guide that the occurrence of natural phenomena may be to the time most beneficial for the performance of horticultural operations, we may remark in confirmation of our opinion, that whatever may be the character of the season, whether it be unusually cold or preternaturally mild, the same order prevails in the leafing of plants, as follows:—

1. **Honeysuckle.**
2. **Gooseberry.**
3. **Currant.**
4. **Elder.**
5. **Birch.**
6. **Weeping Willow**
7. **Raspberry.**
8. **Bramble.**
9. **Brier.**
10. **Plum.**
11. **Apricot.**
12. **Peach.**
13. **Filbert.**
14. **Sallow.**
15. **Alder.**
16. **Sycamore.**
17. **Elm.**
18. **Quince.**
19. **Marsh Elder.**
20. **Wych Elm.**
21. **Quicken Tree.**
22. **Hornbeam.**
23. **Apple.**
24. **Abele.**
25. **Chestnut.**
26. **Willow.**
27. **Oak.**
28. **Lime.**
29. **Maple.**
30. **Walnut.**
31. **Plane.**
32. **Black Poplar.**
33. **Beech.**
34. **Acacia Robinia.**
35. **Ash.**
36. **Carolina Poplar.**

This invariable simultaneous change, this consistent adherence to the same order of time, seems to demonstrate that the same circumstances, the same variations of cold and moisture endured, produce this general similar effect; they make all plants delay or accelerate their leafing to the most favourable time for vegetating. It seems to follow, therefore, that if it be found one year that the best potato crop was obtained by planting on the 4th of November, being the first day the gooseberry-leaves had all fallen, and that the following year the leaves of the same tree did not fall until the 20th of November, that in such case the potato planting ought until then to be delayed, for, as M. Barck observes, "No one can deny but that the same influences which bring forth the leaves of trees will also make grain vegetate; and no one can justly assert that a premature sowing will always and everywhere accelerate a ripe harvest."

We beg leave to explain that our illustration by potato planting is a mere assumption, and that we do not intend to advance that the fall of the leaf of the gooseberry and potato planting ought to be simultaneous: we only throw out the suggestion for others to confirm or to refute by observation and experiment, adding only thus much, that Mr. Stillingfleet, one of the most careful of Nature's observers, says, that in his time "the prudent gardener never ventured to put his greenhouse plants out until the mulberry leaf was of a certain growth."

Returning to the consideration of the requisites necessary for the healthy germination of seed, we next may observe, that as no seed will germinate without a certain degree of heat is present, so also does it require that a certain quantity of water be in contact with its outer skin or integument, and this is required not only to soften this covering, and thus permit the enlargement of the cotyledons (seed lobes) always preceding germination, but also to afford that water to the internal components of the seed, without which the chemical changes necessary for the nutriment of the embryo plant will not take place.

Pure water, or some other liquid of which it is a large constituent, is absolutely necessary; no other fluid will advance germination a single stage. The quantity of water, necessary to be present before germination will proceed, varies much. The seeds of some aquatic plants require to be completely and constantly submerged in water; others, natives of dry soils and warm climates, will germinate if merely exposed to a damp atmosphere, of which the Spanish and Horse chesnut afford ready examples; but the far larger majority of seeds require and germinate most healthily in contact with that degree of moisture which a fertile soil retains only by its chemical and capillary attraction. If the soil be inefficiently drained, and there is, consequently, a superfluity of stagnant water, the seeds either decay without germinating, or germinate unhealthily. This arises neither merely from its keeping them in an ungenial temperature, nor only from the usual tendency of excessive moisture to promote putrefaction; but also because the vegetable decomposing matters in a soil, where water is superabundant, give out carburetted-hydrogen with acetic and gallic acids—compounds unfavourable to the vegetation of most cultivated plants, whilst the evolution of carbonic acid and ammonia is prevented, which two bodies are benificial to the embryo plant.

We are reminded by the calendar to-day of one of our favourite bulbous flowers, the Tigridia pavonia, of which there are two or three forms in the seed shops; they are called species by some, and are as much entitled to such distinction as many others. The second form of the Tigridia is more dwarf than the old one, and orange yellow where the old one is red; the beautiful markings are much the same in both kinds. The name of this second species is *Tigridia conchiflora*, or shell flowered; and the third form of this plant is called "*superba*," though not so handsome as the other two; it is more in the way of the old Tigridia, with less brilliant colours, and in stature is intermediate between the two. We also learn from some excellent papers by Dr. Mc Lean, in late numbers of the "Florist and Garden Miscellany," that he has succeeded in raising cross seedlings between these tigridias, or tiger flowers. We hope this may be so, and we should very much wish to hear of others following his example; perhaps our coadjutor, Mr. Beaton, will enter the lists here. He has said that these tigridias require some such treatment as he described for the Tuberose, and it is for this reason that we now more particularly allude to them, as we are assured that not one out of a hundred succeed in keeping all their bulbs of them over the winter. This failure is caused by taking them up too early in the autumn. These bulbs do not ripen in our climate by the time they are overtaken by the early frosts; nor do they require a lengthened period of rest like many other bulbs. Therefore, what we would recommend for them is this, that they should be left in the ground till about the commencement of the new year, with dry leaves, or some kind of thatch, to keep the earth about them from freezing, then to take them up and dry them thoroughly and to pot them, about the middle of February, three in a 5-inch pot. They should then be placed in a warm situation, such as a cucumber bed, till their leaves are well up above the soil, then to be removed to a cool greenhouse, pit, or window, till the spring frosts are over. They may be planted out then in beds, or borders, with the balls entire, and the surface of the balls to be an inch or so below that of the bed.

THE FRUIT-GARDEN.

The Strawberry In-doors.—We are now too late to offer advice about the culture of the plants as a preparatory step to their successful forcing; indeed, this part of the ground has been gone over in previous numbers in another department of The Cottage Gardener. As, however, practices slightly differ, we shall, in due time, have a good deal to say about it; for no mode of forcing can prove successful with bad plants which have been improperly treated.

The first point to which we would draw attention at this period, is the protection of the plants until wanted for forcing; for this is a most material point of the business, and many a lot of fine plants have proved barren for want of precautions in this way; whilst the owners would be completely puzzled to divine the cause. This often happened in former days, when the pots were set down in any out-of-the-way corner, to be dried up, or frozen, as the case might be, until scarcely a live root remained to commence operations with; yet, at the same time, they might possess strong looking buds; these, however, were the produce of former agencies. Hence one fertile cause of the anamolous appearances they frequently carried, and which the gardener of the olden time used to term "going blind;" and, on inquiring the reason, we used to be thus answered: "There's no accounting for it—they're apt to do it in some seasons." To make farther inquiries after such an answer was, of course, considered impertinence; and many a one, in our younger days, stuck fast contentedly in this "slough of despond," without attempting to lift a leg.

To protect strawberries in pots, then, they must be plunged, as gardeners term it; that is to say, immersed in soil, sand, ashes, or tan, down to the very rims of the pots. The object is to preserve the tender fibres from the vicissitudes of the wintry air; and this the plunging accomplishes, and indeed something more, as we will endeavour to show. It is well known that the earth and the atmosphere borrow, at certain periods, of each other; they do not, however, like some parties, repudiate their debts, but pay them back in the most scrupulous way, as all good agents should do. Thus, during one half the year—perhaps in May, say from April to September—the earth borrows of the sun; or, in other words, the ground heat increases or accumulates during that period. Towards, however, the period of the "equinoctial gales," the reverse takes place; heat—solar heat—is no longer absorbed, but the borrowed store of what may be termed natural bottom heat, is progressively restroed to the atmosphere by a process which our learned men term "radiation;" that is, the air being colder than the earth, the heat from the latter passes off into the air. Towards March, these things being not far from a state of equilibrium, a balance is struck, and the accounts opened anew, in the language of our commercial friends. So that it will be seen, as we before observed, that the plunging affords protection from vicissitudes, and something more. It affords a real "bottom heat," and which is of no mean service, as encouraging a small amount of root action, which acts in a very similar way to the advanced fibres in the hyacinth; for here the great desideratum is to get roots before the bud is excited. Very frequently, indeed, at the latter part of October and the early part of November, during severe weather, a thermometer at six inches in depth will give ten or more degrees in favour of the ground heat: this, then, is a consideration not to be lost sight of. Having now, we trust, established the principle, we revert to the plunging. It is essential that the ground on which they are plunged should be perfectly dry; an airy, sound, and elevated spot, therefore, must be selected. The pots should be set on the surface, and filled up between with any of the materials before named. The plants should not be crammed too close—at least the leaves should barely touch each other—and the soil beneath them should be of so porous a character that any amount of rain that may fall shall speedily find an exit.

We must now see what should be done for the tops. Some kinds, as the *British Queen*, are notoriously impatient of severe frosts; whilst others, as the *Kean's Seedling*, are comparatively hardy. This tenderness of habit on the part of the "Queen" is indeed a serious drawback on its out-door culture, for otherwise it is doubtless one of the finest strawberries in cultivation. It is absolutely essential, then, that the tops be covered in frosty weather. Any loose dry litter, whether of straw, fern, or even bad hay, is eligible, but the more free and open the better, as any close soft material might, through laying on them during a long frost, engender mouldiness on the under side. When frost commences we would suffer them to have a night or two uncovered, if not too severe, and then, when they are slightly frozen, cover them well with the litter. We would pursue this course in order to avoid the necessity of frequent uncoverings through slight fluctuations in the weather; for as long as they could be kept unthawed there would not be the slightest occasion to uncover them. No mouldiness will engender under those conditions.

This, then, is the mode of handling pursued by all our very best gardeners, not one of whom, of any standing in his profession, will suffer them to remain unplunged or unprotected. One thing must be observed, and that is, that a little watering will at times be necessary during the autumn months. It should, however, be given rather grudgingly after this period; for, although any amount of dryness is not desirable, yet any extreme of wet or water lodgments is extremely prejudicial.

We have now handled the subject as far as the ordinary practice is concerned; we may now endeavour to assist those who would fain force forward, yet have hitherto made no preparation. The taking up strawberry plants in November from the open ground, and forcing them, although by no means the best practice, is nevertheless practicable; only one thing may be remarked—they will not bear atmospheric warmth so suddenly applied; neither, indeed, can they be forced so early as established plants—it would indeed be folly to attempt it. Those amateurs, or others, who would indulge in a hobby of the kind, should not remove their plants until the early part of December; they should be prepared with a frame, or pit, in which a little bottom heat should be provided —say a guaranteed heat of 60°, for three weeks. Some tan or other plunging material should be placed on the top, and the strawberry plants, the moment they are potted, should be plunged to the rim, and even a little over it. The soil should be moist at potting time, and we would not even "water them in," as it is termed (that is, pour water over the soil at the time of planting,) unless the plants were actually dry; but rather leave the roots somewhat porous, in order that the warm gases of the bottom heat should freely breathe through the mass.

Whilst in this frame, or pit, which may merely be considered a preparatory stage to their introduction to the hothouse or planthouse, they should be kept at a low surface temperature—the thermometer ranging from 55° highest to 45° lowest. This course is pursued in order to bring on a root-action before the buds are excited—an important point, which we before explained by referring to the bulbous tribes. It is only of late years that this principle has been recognised as it ought; and now no gardener will venture either to dispute or to slight it. As soon as Christmas is turned they may be introduced to the house, and as the change from a close and damp medium (as to the roots,) to one more airy and more dry, is very considerable, the waterpot must be put in requisition; watering frequently but slightly at first.

We shall in a few weeks have much more advice to offer about strawberry forcing, and in the meantime we must conclude with a few general observations. At no time should they have a greater heat by artificial means than 60°, if possible: we believe this to be the maximum amount to be beneficial. Of course sun heat is a different affair, especially when the plant is much advanced; still the strawberry succeeds best in a moderate temperature. They should at all times be kept as close to the glass as possible, and when once the blossom spike appears, they should never be suffered to become dry for an hour. Not that they like to be saturated; we merely mean attentive watering, for being so limited as to soil, as compared with those in the open ground, not a point may be given away. Again, liquid manure should be used from the moment the truss of blossoms begins to rise, for unless the flower stalks lengthen freely, and with vigour, it is vain to expect a good crop. The liquid manure may be commenced *very weak*, and increased slightly in strength as the fruit advances towards maturity, taking especial care to discontinue it the moment the first berry is observed to change colour. These, then, are the main maxims, but more advice in detail will be requisite in a few weeks. R. Errington.

THE FLOWER-GARDEN.

Planting.—One of the greatest improvements in modern gardening is autumnal planting, and more particularly of evergreen trees and shrubs. Here we made a beginning, for some years past, about the middle of September, and we consider it a good hit when we can finish by Christmas. Those who have planted thus early will not willingly put off to a later period in after years. This has been one of the best autumns for early planting that I recollect The ground was warm and the weather very mild—no heavy blustering winds to toss about newly-planted things, and the early rains at the beginning of October were abundant, and as warm as on a May day, so that fresh loosened soil was soaked through and through, thus carrying the finer particles of it down into any open spaces that might have been left about the roots; and no doubt, by this time, fresh healthy roots are formed in abundance from the sides and cut ends of the larger roots of our transplanted trees or shrubs. As, however, a good deal of planting is still unfinished, and, in the majority of places, not yet begun, or, may be, not much thought about, I am still in good time to lay down a few rules which may be useful to young planters. We often learn as useful instruction from the results of bad practice, as from details of the most perfect operations or the most scientific bearing of a question relating to the operations of the gardener. Indeed, were we candid enough to avow our errors and record them, I am not sure if that would not be, at times, the best portion of our instructions. At any rate I shall here record, in the first place, how I was first taught to plant a tree: a hole being made large enough to hold the roots, and as deep as would allow of the tree being planted as far in the ground as it formerly stood, the roots were spread evenly on the bottom, and then a few spadesful of soil thrown over them; the tree or bush was now shook up and down and, may be, sideways, in order that the soil should crumble down among the roots; a few more spadesful thrown in, and another shake or two, and so on till the hole was quite full; then two or three stamps with the foot were given, to steady the plant, and this barbarous work or mischief—which you will—was finished. Let us now analyse this process from beginning to end, and see what we can make of it. In the first place, the hole was large enough to hold the roots without cramping or twisting them round it; so far so good, but it ought to have been larger—even if it had been in a piece of garden ground that had been dug and trenched times out of mind—in order to allow the new formed roots to pass on in straight lines, instead of having to grope about for a free passage, which probably they would soon find in this garden ground. But let us suppose the planting to be done in a new piece of ground that had not been disturbed for years, and the case is very different. How the young roots are to escape from a confined space in such hard soil is more than what many planters can tell, or even guess at; and yet this is not the worst part of the tale. The roots were spread out regularly, that is, not one of them crossing another, but drawn out from the stem like lines—nothing could be done better; then a little mould was thrown over them—all right and proper too; but now mad-brains will have his way—he orders the tree to be shook, to let the soil fill in among the roots. You pull it up gently, it is true; shake it two or three times, and then let it down in its place again, and the mischief is accomplished. How? You can't see it. Of course you cannot—it is below the surface; but can you not perceive that, when you pulled up the plant to shake it, all the roots followed, and, on a moderate calculation, were thus displaced full six inches; that is, their points are six inches nearer the centre of the hole than they were when we laid them down. Moreover, many of them, perchance, are as soft and as pliable as Sally's auburn hair, and they have a load of earth thrown over them. Now do you understand me? No. Well, then, when you let down the plant after shaking it, what became of those pliable roots? Why, every one of them must have been doubled up into loops, as they could not be pushed forward into their former position through the soil, unless they were made of cast iron, or something else that would not yield; or, if they are brittle, as many roots are, they would snap like glass sooner than they could be pushed back through the soil into their former places; and thus many an honest man laid the foundation of bad diseases in his best shrubbery plants—rendering them liable to the attacks of insects—to be covered with moss and lichens, and all other casualties to which sickly or stunted plants are liable. I could instance a lot of young thorns that had been planted twelve years since, after this fashion, that have not yet made six inches of young wood, and, to this day, they look the pictures of misery and bad management. But I have said enough to warn the young planter against this way of planting, and now let us see how the thing should be done.

If the soil is at all dry at the bottom, no matter how poor it may be, it should be stirred or trenched three feet deep for garden planting—that is, for ornamental trees and shrubs, and for hedges. In the case of single plants, where a pit or hole is only required, the narrowest diameter ought to be four feet, and if the bottom soil is poor it should be removed and some good added instead; but loose soil of this description will subside in time, and if the plants are tied to stakes, as many need be to keep them firm the first year or two, the sinking of the soil from under the roots may cause them to strain, or otherwise injure them, by cracking and letting in the dry winds to them. Another evil is, that when trees thus planted sink down gradually, additional soil is placed over the roots to make the surface level, and this is equivalent to planting too deep in the first instance, and deep planting is always to be avoided. Therefore the loose or new soil beneath the roots ought to be gently pressed down, and the pit filled up to near the surface of the ground, or say to within three or four inches of it, so that, when the tree or bush is planted, the surface of the pit will appear a little mound, several inches above the surrounding surface. Some good planters make mounds much higher to allow for settling, but I prefer pressing the bottom soil in the first instance. One might say of this, why loosen it at all if you press it down again? The reason is to have a perfect drainage under the roots, and to encourage the strongest of them to run deep in the ground, which will give the plant greater vigour. We plant fruit-trees shallow and on hard bottoms, to prevent them getting too luxuriant; but in gardening for ornamental plants, the more healthy and vigorous we can grow them the more ornamental they will be; unless, indeed, they are rather tender for our climate, in that case shallow planting on a solid or unloosed bottom suits them best, as they cannot grow so strong, and will therefore ripen better. All this being understood and settled, let us plant a moderate sized bush to begin with—say a Portugal laurel, for instance; it has been well taken up, has some long bare roots and a host of small fibres, with a considerable ball of soil attached close up to the bole or botttom of the plant; this ball we place in the middle of the prepared pit, and we find that the ball is so thick that those strong roots cannot lie down level on the surface, but "ride," or hang loose some inches above it. What is to be done with them? hook them down to the surface, or lower the bottom of the hole? No, that would be bad planting again. We must fill in the loose soil under them, that they may lie in their natural position, and in doing that the small fibres are pressed down too much, perhaps; if so loosen them back again, and fill in any cavities under the bole or main roots. We shall now suppose that the whole under-surface of the ball is resting on the soil, and also all the roots, great and small, and each of them branching out in straight lines, or as regular as they can be placed. Some of the lower ones will be out of sight, but the majority are still in view. If we had a little better soil from a compost, this would be the proper time to throw it over the roots; not at random, however, for fear of displacing the fibres. You must do it thus: take a spadeful, and throw it past the stem of the plant on the roots on the opposite side to you, so that the soil runs along in the same direction as the roots. If you throw it on the roots next to you, it will run against their direction and turn back their small points, which would be nearly as bad as the old way of shaking the plant up and down at this stage. When all the roots are covered an inch or two, the watering-pot must come, with a large rose to it, and you must water all over the surface heartily, even if it is a rainy day. This watering is to do the business of the old shaking—settle the finer particles of the soil about the roots: the rest of the soil, to the depth of four or five inches, may be thrown on any how, if the lumps are broken small, so that the surface is pretty smooth, and formed into a shallow basin to hold the future waterings. A stout stake, or stakes, according to the size of the plant, should be driven down before the earth is put over the roots, to tie the plant, as recommended in a leading article, page 14, which article anticipated part of this letter on removing large plants, and is in every respect plainer and more to the purpose than I could put it. All that occurs to me farther on the subject is, that when large bushy evergreens are to be removed, their branches must be tied up towards the stem by passing a rope or strong cord round them, before commencing the roots. All this kind of garden planting ought to be finished before Christmas—I mean the removing of large specimens; but young trees and small bushes are planted by the thousand every spring, with little loss in the hands of good planters; but young beginners ought to finish as early as the nature of the season will allow. When you come to a very large Portugal laurel, or a common laurel, or indeed any very large shrub that has overgrown the space allotted to it, and it is so far encroaching on other things that it *must* be removed in some shape or other, what is to be done with it if it is too big to remove? A plant 50 yards round the bottom, is no joke to transplant, and I know one as large. Cutting back the longest branches will keep it in check for many years—but that is not the point, but that this very large plant must either be cut down, and grubbed up for the wood yard, or be transplanted.

All gardeners have met with such cases, and no doubt disposed of them easily enough; but I have a new method of dealing with such as cannot be transplanted, which I have adopted here for some time, and which promises to be the best hit I have made for many years. It is to cut them down in November, to within a couple of feet of the ground. I have tried spring cutting, but it does not answer half so well for the purpose. When the stumps begin to shoot next April, they are cut close to the ground, and soon a host of strong suckers will spring up as close together as those of a raspberry bush. After a while, when they are strong enough to bear handling, you begin to cut out the weak ones, till the whole have room enough to grow away freely, which they will now do in earnest, and as straight as fishing-rods or gun-barrels. I have seen strong shoots from a common laurel stool of this kind reach up to ten feet in one season; and they often attain from six to eight feet. Now, what I propose to do with these strong suckers is this—to make clean stemmed trees, or standards of them. Many attempts have been made to obtain fine standards, with clean smooth stems to them, of our more common bushes, with various degrees of success. The Portugal laurel treated thus is a good imitation of the fine standard orange and lemon trees of Italy; and the common laurel is not much behind it. Any of the varieties of the common Phillyrea may thus be made to imitate the narrow-leafed myrtle of the south of Europe, while the common Alaternus might be mistaken, at a few yards' distance, for the broad-leafed myrtle, if reared up on a five-feet standard with a close circular head; and to imitate the olive as a close-headed standard, take an overgrown old privet plant, cut it as above, and you will soon have a dozen of them. The pomegranate, and indeed any half-hardy little tree, may thus be imitated—the principle is the same with them all; but I must soon have a whole chapter on shrubs, evergreens, and otherwise, which can be formed into fine little standard trees, which would look extremely well in gardens of limited extent, as well as those of the most extensive. I have seen for this purpose whole Portugal laurels stripped of their side branches, up to five or six feet high, and the tops formed into circular heads; but the wounds and scars left on the stem—unavoidably, it is true—where the great side branches were lopped off, were most hideous to my eyes, and so ungardening-like, that I would as soon live in a desert as be surrounded with such ugly and haggard-looking objects. Unless a thing can be done properly, and more especially experiments on living plants, in the name of all that is blue-apron-like, let us not scandalise our ancient craft by aping and caricaturing. But to return to our suckers, from which these very handsome imitation plants are expected, as soon as they are from five to seven feet high, nip off the points to stop them, and the next half-dozen buds below will start into side branches, which are to form the foundation of the future standard; therefore, see that they are at proper distances from each other. The situation of the buds will determine this before any branches are formed, and if the buds are too close together, disbud them, so as to allow room enough for the future branches. If any side shoots are made lower down, either after stopping the points or before, they must be nipped before they form one joint, and only the leaves from which they issue left. All the leaves on the stem from top to bottom are left on the first season, but no side branches allowed, except the few at the top, to form the head. When the young wood gets firm, say about August, you may begin to cut out the buds, beginning at the bottom and going up progressively as the wood ripens; so that, by the end of the first growing season, all the buds on what is to form the future stem are entirely got rid of. This is the most essential part of the whole process—but the buds ought to be extracted—yes, that is the right word—extracted without injuring the leaves; for unless the buds are taken out with their roots, so to speak, depend on it they will trouble you afterwards by throwing out strong side branches; but once extracted from a one season's growth, no tree, I believe, has the power of renewing them a second time. But some of these days I shall relate some curious experiments on the subject; meantime, these suckers may be safely left attached to the mother stools for three years or more, for they will acquire more strength and come sooner into use that way than if taken off sooner. Anytime during the spring of the second season a ring of bark, about two inches wide, must be taken off the bottom of these suckers, and the lower down the better; then, when these wounds are perfectly dry, and the upper edges of them begin to swell by the formation of new wood, and not before, you may earth up some good soil all over the old stool, till it is four or five inches above the ringed parts. Roots will immediately issue from the swellings of these rings, and so form you a tree "on its own bottom." By the help of these roots and the connexion with the parent stock, very vigorous healthy young trees are formed in less time and more handsomely than by any other process known to us; and in separating them from the stool, work your way to the ringed parts and cut through them with a small saw, and this you may do twelve months before you finally remove your new standard. D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

Calceolarias. — Thirty years have not elapsed since the first of these beautiful family of menopetalous (one-petaled) plants was introduced into this country from Chili and Peru, but the still more beautiful hybrids that have been raised from them during the last eighteen years are numberless. Still, for many purposes, such as flower beds, and for pots in windows, those originally introduced, and those slightly varying from the primitive stock, are truly valuable, as they possess the property of continuously blooming for six or seven months in the year, and with a little care would bloom all the season through. What, either in a bed or in large pots for vases or windows, can be more beautiful than the orange *C. viscosissima* (so named from the clammy nature of the leaves), or some of its dwarfer progeny, when contrasting with a bright scarlet or deep blue, or a vivid purple, or even, if it should happen to be its possessor's peculiar taste, fitting in with the paler yellow of the lately introduced, pretty *C. amplexicaulis?* Another advantage of these first introduced shrubby varieties is, that they seem to retain with us the natural hardiness they possessed when growing upon the hill sides of Chili, where, though in the immediate neighbourhood of the tropics, they yet flourished in a temperate clime, from being elevated far above the level plains—protected on the east by the snow-capped Andes, and regaled from the west by the moist breezes wafted from the Pacific; while our more large, beautiful herbaceous, improved hybrids partake, to a certain extent, of that tenderness and liability to injury which generally accompanies improvement in the form and structure of the animal, and civilisation and social progress in the man. To counteract this tendency to degenerate, so far as robustness of constitution is concerned, some men must be found strong-minded enough to break through the common practice of hybridising with the most improved forms, and make use of some of the older hardier species as one of the parents, being satisfied with the interesting and beautiful results of their labours; their plants being hardier, though, perhaps, not quite reaching in size and form the florist's standard of perfection. When the proper season arrives we shall again direct attention to the subject, as few can have better opportunities for carrying out the principles of hybridising than the general readers of The Cottage Gardener; and, in the case before us, no easier means could be taken for obtaining a vast variety for beds or borders.

The word calceolaria is derived from *calceolus*, a little shoe, or sandal, and hence the whole family have been styled *slipper-worts*. The first introduced species might well have reminded a Chinese mandarin of the richly-clad, beautiful *dumpy* feet of his lady love; and strange sensations they might have conjured up in the minds of many of our ladies, and gentlemen too, who will have their boots made of a certain shape and size to please the eye, magnanimously resolving that the feet shall be made to fit their covering, let corns, bunions, deformities, and illness come as they may. But, lack-a-day, gardeners have so changed the appearance of these flower slippers—have resolved they shall be round as a circle, without even a notch in the circumference, and shall be as blown out as a bladder—that the only slippers these wondrous calceolarias can now-a-days be compared to are those which we put upon a horse's feet when we require his services to roll a carriage-road or a lawn. To such a quarter we have no notion that the devotees of fashion will come for shapes and patterns, though, judging from the strange shapes of shoes for the last thirty years, there is no saying what the next new idea may be. Be that as it may, all honour, say we, to those who in any kind of slippers, whether leather or vegetable, can see beauty and elegance *in true utility*, though far removed from the shape of fashion, and the standard form of florists. And this honour is justly due to the man, though I never heard even his name, who raised and preserved the *Kentish Hero* calceolaria, for though it would not be noticed by a fastidious florist, as it is narrow and longer shaped than any other of the shrubby varieties, and thus more slipper-like, yet the largeness of its brown orange-like flowers, the closeness of the opening of the corolla, the dwarf habit of the plant, the immense size when contrasted with all others of its spikes of flowers, if it be proper to call them so, and its continuous blooming when grown in good soil, render it either for vase, bed, greenhouse, or window-sill, one of the showiest things we have met with for years. It takes longer time, and is shier to propagate, than any other calceolaria, shrubby or herbaceous, that has come under my care; but, probably, it wants a little peculiar management. It was presented me by a kind neighbour last autumn, and as I was greatly taken with its appearance, I did not let it stand idle during the winter and spring; and though my success in propagating it was far from meeting my expectations, it yet enabled me to send some of it north and south as freely as I had received it; but several of the recipients have since written to say that they cannot get a cutting to strike. If this should meet the eye of the raiser of this hero, or of any other person who has succeeded in propagating it, with any thing like the ease of other shrubby calceolaries—losses in which, either from the cuttings not rooting or damping off, we never calculate upon—the statement of the peculiar mode of management will be acceptable to hundreds of its admirers. We have seen it several times this season, when there was nothing remarkable about; and, therefore, to show that we are not selfish, but are as ready to do a kind action as to expect one in return, we would say that, judging from our own practice, this calceolaria will always be most beautiful when grown in a rich loamy soil. There will then be little growth so far as the woody matter of the plant is concerned, but the masses of bloom will be splendid.

We would gladly have filled our paper to-day with jottings about the management of shrubby calceolarias, did we not feel convinced that those correspondents who complain that they cannot keep their plants over the winter must have reference chiefly to those which are of a herbaceous nature, or are merely slightly shrubby. Now, we suppose something must be said upon this, though it is rather a sore point with us just now, for though we have had great success for years in the management of these fine blotched and spotted varieties, we fear we shall have a little trouble with them during the coming winter, as already the plants are all gone, with the exception of a few bits of cuttings inserted a few days ago, and these not so healthy as they ought to be.

Before describing the method by which previous success was obtained, I will first describe the cause of my present loss, as it may be useful as a warning, for if I succeed in preserving some favourite kinds it will be at the expense of extra-codling them. Previously to the plants coming into full bloom, though reared from cuttings of the previous autumn, many were in 12 and some in 16-inch pots, with large heads, quite free from insects, and the leaves green and luxuriant, without which latter quality I always consider a calceolaria a ricketty thing at best. They were then removed to a glass case close to the mansion, where the atmosphere is generally too dry to suit their nature, and where the usual methods for keeping insects at bay cannot be resorted to, but where they, nevertheless, answer the purpose of decoration for a considerable time. They are removed thence by degrees, as soon as the least signs of unsightliness appear, and are placed behind a north wall. When all were got out they were examined, a plant or two of a sort kept, and, as the green-fly had commenced their ravages, they were put into a pit, to be well smoked and shaded. Unfortunately, the shading was blown off in a very bright day, and was not noticed until the mischief was done, as the leaves—injured by the insects, sick with the smoke—were regularly done for by the sun, so much so that it is only a few days since that we could obtain a few green bits as cuttings, the plants themselves being useless. Now, there were two errors here: the first, not properly fixing the shading; and the second, not placing the plants under a north aspect. During the summer few plants are more impatient of full sunlight: setting the plants under a north wall, or planting them out in a well-drained north border, are the best positions for them, and, if not very bad with insects, a good syringing of cold water would send them a scampering. We have just pricked off into pans some seedlings. Those who have plenty of room would have done that some time ago, by sowing in August instead of September.

Now for the mode of management. I have tried various methods,—such as the repotting of the old plants, and dividing the larger ones, &c.; but that which has succeeded the best with me in producing healthy beautiful plants, was by raising them every autumn afresh from cuttings. I have inserted the cuttings round the sides of pots, well drained, and placed them under glass, or inserted them in small prepared beds under hand-glasses; but I have never been more successful than by the following method: At the foot of a north wall, a space of ground was levelled; a layer of salt and lime was put down, to keep slugs and worms at a distance; over this a layer of coal-ashes, and then another of broken potsherds, over which was placed four inches of equal portions of loam, leaf-mould, and peat, with a little sand and charcoal-dust—all well broken, and the finest sifted out; the coarse to go at the bottom, and the finer at the top—placed in width and length to suit the size and the number of the hand lights to be used; when these were put on, a good soaking of water was given. When settled, and a little dryish on the surface, from an eighth to a quarter of an inch of silver sand was added, pressed smooth and firm, and the cuttings were taken off, and inserted in the end of August or the beginning of September—choosing the points of the shoots, in preference to cuttings from the stem, as they make better plants—there never being any necessity for stopping these large flowering calceolarias, however large you may wish the plants to grow. Those who merely possess a cold pit for wintering them, should set about propagating them in the earlier part of August. After the cuttings are planted, a slight watering must be given, to settle the sand and earth firmly about them; and after that, with the exception of a slight dust from the syringe over the foliage in fine days, and giving a little air in mild nights, they will require little more attention, until you take them up to pot them, some time in October.

In potting we use small pots and light sandy soil, with a little leaf mould; and, as the sun is now declining in strength, we place them in a pit with a south exposure, with shading at command, and we like to plunge the pots, at this time, in a medium free from worms and possessing a mild heat: the object being to fill the pots with roots as quickly as possible. The pit is kept close for a short time, but air must be given as soon as the plants will stand it; and to assist them doing so when in this young state a slight dusting from the syringe may be given them on a bright day. I had better tell you what I mean by this dusting.

Of all syringes, Read's common garden one is the best, because it is the most simple and effectual. With every syringe is sent several end pieces, to screw off and on at pleasure, pierced with holes, to resemble roses of a watering-pot, with different degrees of fineness; and there is also one without small holes, but furnished with a jet, like a garden engine. A fig for all the roses, the jet is the thing for me. By placing your thumb of the left hand upon the point of this jet, you will soon get into the knack of so regulating it, when you send down the piston with the right, that the stream of water, as it issues, may be as strong nearly as from a water engine, or may resemble the finest misty vapour. This last is what I call dusting, and every cottager may have it in his power to give it to his plants, if he only procures a tin or pewter syringe a little larger than that used by schoolboys. Well, the plants are shifted into larger pots as soon as they require it, and plunged again; not for the heat at the bottom this time, for that will be all gone, but for the double purpose of keeping the roots in a uniform temperature, and preventing the necessity of frequent watering during the dark days; the object being to grow the plants slowly until the change in the day, and rapidly afterwards. At the third and subsequent pottings, the plants are set on boards, as the leaves by that time are generally sufficient by their shade to keep the roots moderately cool. Now, this treatment would not do at all in a cold pit, unless the season was very favourable. I have the command of a hot-water pipe whenever it is necessary, and by that means I can give my plants a moist atmosphere, and keep it in motion by plenty of air, which is the very life of calceolarias of the tenderer kinds; just as a stagnant moist atmosphere is their ruin. I like the temperature to be from 40° to 45° at night, though not particular in having it lower in cold weather, allowing it to rise five or ten degrees with sun heat. The soil we use more rough at every potting, and towards the last use peat charcoal and dried cow-dung rather liberally, in addition to the sandy loam; and water now and then with weak manure water, smoking with tobacco at the slightest trace of fly. The treatment to be given in less favourable circumstances will be again referred to.

R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

Fresh imported Plants.—When boxes, or other packages of orchids arrive in this country, they are too often quite dead. Some that are alive, have made roots and shoots during the passage, and these from close confinement are frequently half rotted. Others are alive, but dormant and almost dried up. Several inquiries having reached us, as to the proper treatment for newly imported plants of this tribe, we have thought it right to give our experience on this particular part of orchid culture thus early, that any of our readers who may be receiving parcels of them from foreign climes, may know what to do with them. We have frequently observed them destroyed by improper treatment, even when they have come in very fair condition. The first thing we do on receiving them, is to examine them closely, and all such as are certainly dead are thrown away at once. From all that are alive, we cut off all dead roots, dead shoots, and pseudo bulbs. In some instances a curious new plant may arrive with some part of the pseudo bulbs quite sound, and the rest in a decayed state. This apparently new plant it is desirable to start into growth. In this case cut away with a very sharp knife the decaying part, and apply to the wound some powdered chalk, this will close up the pores and prevent further putrefaction. When these points are all well and duly performed, then comes the difficult question: "What shall I do with them; shall I put them in pots or baskets, or on blocks of wood?" A good deal depends upon the kinds of orchids received, and the size of the masses. If *Stanhopeas*, we place them upon a shallow trellis basket without any compost just, as they are. Two or three years ago a large mass came into our possession; as soon as we received it all the dead roots were trimmed off, and the mass kept entire. In that state it was laid upon the shallow trellis basket, and hung up in the coolest part of the house, syringing it occasionally. It soon began to grow, and the following year flowered, and has grown and flowered well ever since. This summer it had nine of its gorgeous blossoms open at once; it proved to be the finest of all the genus, viz. the dark variety of *Stanhopea tigrina*. All *Lælias* and small masses of *Cattleya*, with most kinds of *Epidendrum* and *Barkeria*, we always place upon block, as soon as we receive them, without any thing else (such as moss or rough pieces of peat) whatever. We hang them up against a cool moss-covered wall, or in a shady place over a tank of water. They are syringed frequently, and we find they will grow sooner and preserve their roots longer on these naked logs, than in pots or baskets.

In this way we have succeeded well with that rare and beautiful plant *Sophronitis grandiflora*, and the equally elegant *Barkeria spectabile*. By this method we have frequently recovered sickly plants. A small plant of *Cattleya labiata* had been grown, or rather allowed to exist, in a mixture of turfy peat and charcoal in a pot for three years. It put out roots annually, and made shoots, the latter becoming less every year, and the roots entirely perishing. In this state it came under our care; it was taken out of the pot, all the dead roots cut clean away; a nice oak block without bark was procured, six tinned tacks were driven in not quite up to the head three on each side, the plant placed between the rows and firmly tied down, or rather laced down with some copper wire. Now this plant having been accustomed to the moist heat of the orchid house, it was placed in the warmest part of it, and received its daily syringing with the rest of the plants. In a surprizingly short time it sent out new roots which immediately laid hold of the log, and in process of time, the new roots enabled the plant to send a much stronger shoot than it had done for years previously. It was afterwards, when it had fairly recovered its health put into a pot upon the log, surrounded with rough turfy peat in small lumps mixed with broken pots, and is now in a thriving condition.

That fine orchid *Phalænopsis amabilis* which has been denominated very justly "the Queen," has been lately received from the Phillipine Islands in considerable numbers. Those importations have rendered the price more moderate. This plant is also to be placed upon a naked log. It will not thrive in, or upon any thing else. The roots will perish if covered at all. There are also three or four genera that require the same treatment as the last named. We allude to newly imported *Aerides*, *Saccolabiums*, *Vandas*, and some *Angræcums*.

Fasten all these, as soon as received, upon logs, with tin tacks and copper or metallic wire; place them in the warmest part of the house, with the *Phalænopsis*. If over a tank of warm water so much the better. It is a good practice, and we can recommend it, to dip the plants and logs frequently over head in this tank. It seems to refresh them greatly, and encourages the fresh ones to put out roots in a short time. In dividing shoots off any of the last-named species, we treat them in a similar manner, and invariably find them put out new roots sooner than by any other method. As soon as they have pushed forth a sufficient number of roots, we place them all (excepting the Phalænopsis, which must always be grown on a log) in baskets made of round hazel rods, the size to correspond with the size of the plant. These baskets are filled with rough sphagnum, a white moss found in wet boggy swamps. This moss must be used in a dried state: first cover the bottom of the basket, then place the plant in the centre, holding it above the level of the top of the basket; work the moss amongst the roots gently, until the basket is full, or a little raised above, closing the moss carefully to the plant; then give a heavy watering from a syringe: this will level the moss, and close it too to the roots. The plants may then be hung up in the Indian house, and will require no further care (excepting syringing freely in hot weather) for a year.

We have often been asked what is the best kind of wood to cut for logs to grow orchids upon. After repeated trials, we find none so good as the acacia, commonly so called. It is the *Robinia pseudo-acacia*. This wood is firm, and has the desirable quality of not decaying so soon as most other kinds of wood. The next best is the oak. In all cases we strongly recommend the removal of the bark; our objection to retaining it being that it only serves as a hiding place for wood-lice, small snails, and other destructive insects, besides retaining in winter too great a quantity of moisture. The wood should be procured a year before it is used, and then the bark will come off very easily. We except cork wood, which we think very good when it can be procured readily for this purpose; and the bark of cork suits the orchids well, and, unlike the others, does not rot so soon, and consequently has not the objection to its use of being a receptacle for vermin. The best wood for baskets is the rough-barked common maple; the branches of this tree make the handsomest baskets, but as it is not so plentiful as the hazel, the latter is the sort we recommend. Some object to baskets of this description on account of their soon perishing. This we consider no objection at all, but rather an advantage; for as soon as the basket is decayed the plant has grown so large that it requires a new one, and the rotten sticks of which the old basket is made are more easily broke and removed than sounder ones.

We shall finally state which we put into pots when imported. We pot all such as appear from habit, and the soil adhering to their roots, to be terrestrial plants; draining them perfectly, and using turfy loam and peat to pot them in. Epiphytes (dwellers upon trees) should, when in large masses, be potted, especially the larger growing kinds of Cattleya; such, for instance, as *C. guttata*, *C. granulosa*, and others of similar habits. Turfy peat, with the small fine soil knocked and sifted out of it, and mixed with broken pots and bits of charcoal—the pots to be half filled with drainage—is a good preparation. Raise the compost two or three inches above the level of the pot rim, place the plant upon it, use hooked pegs and stoutish sticks to secure it in its place; give little water, even in summer, and none at all in winter, and you will find them succeed to your great satisfaction. We intend to resume the furniture of the orchid house next week.

FLORISTS' FLOWERS.

Ranunculus.—Last week we mentioned that the beds for the prize winning kinds should be now in a state of preparation. Perhaps, some of our readers may be intending this next year, for the first time to attempt to grow a few first-rate kinds in a first-rate manner. It is for the instruction of such new candidates for floral honours that we write.

Soil.—The soil the ranunculus will thrive in should be of a fine texture, easily broke and moderately light. It should feel soft to the hand, and have a little—but a little—sand amongst it. The best is generally found near to rivers. The flat land in such a locality will be exactly such as we have described above. Let it be laid on a long heap, not too thick, and turned over once a month for a year. It will then be in good condition for use. Remove the old soil away from the bed you intend for ranunculuses to the depth, if the situation is dry, of fifteen inches; if wet, ten inches will do. Put in a layer of very rotten cow dung two inches thick, then bring the soil, put in a layer of four inches, upon that put a layer of rotten hotbed dung one inch thick, and so proceed till the bed is full and raised two or three inches above the surface. Let the bed be edged with something (see the number in which these edgings are described), and do the same for this bed. Hoop it over to protect it from heavy rain, snows, and hailstones. Turn it over, mixing the materials together well; only take care not to disturb the layer of cow dung at the bottom. Let this turning operation be performed two or three times, at the intervals of three or four weeks between; finishing the last about the end of January, so as to allow the bed to settle by the planting time in February.

T. Appleby.

THE KITCHEN-GARDEN.

Artichokes.—Protection must now be given to this vegetable; and dry leaves, fern or mulch of any kind should be collected for placing round and about the crowns of the artichokes, to the depth of eight or ten inches, and a thin layer of earth from the alleys placed over the refuse to keep it close, and to prevent the wind scattering it abroad.

Cardoons.—Bandage these with neat hay-bands when quite dry, and earth up. On wet days prepare fresh bands in readiness for future wants.

Coleworts and Cabbages.—Continue to put out these as long as any vacancies can be found for them, as they are sure to be found useful for some purposes, even if not required for table.

Cauliflowers must also be well attended to. Pot and prick out in succession, keeping the plants close to the glass. Let the soil be frequently stirred, and all decaying leaves be cleared away. Sift dust amongst them occasionally, to keep the surface dry. Those who have strong plants from the August sowings must not let them remain too long in a place without pricking, or they are likely to become too strong, and liable "to button," as we term it, at the season when they should be growing in health and vigour. We have been very successful in Devonshire in producing fine cauliflowers in the month of April for many years past, by sowing quite at the end of September and the beginning of October. We merely place one frame for sowing on the bare ground, or fill up either the cucumber or the melon bed where it stands, with some of the old half decayed linings, leaves or refuse of any kind that may be then at hand, just to secure a gentle bottom heat. A few inches of soil is placed over this refuse, and it is allowed to remain a day or two, so that the warmth may rise, and the materials settle; a little more soil will then be required to fill up level with the top of the frame. The seed is then sown, and beaten down with the back of the spade; a little good earth intermixed with charred dust is then covered over the seed, and the lights placed on until the young plants begin to make their appearance, when air is immediately given by propping up the lights slightly at first, but increasing gradually both back and front, and as soon as the plants are fully up the lights are taken off entirely. The earth is surface-stirred as soon as possible, and a little dry charred material often sifted amongst them, to prevent mildew, or shanking, and to keep them in health and vigour. As soon as the plants can be handled they are pricked out on another well prepared bed close to the glass, or into thumb or small-sized pots, and plunged, keeping them well aired both night and day, and watering them with tepid water when necessary; as soon as required, we shift them into larger pots, never allowing them to get pot-bound, or to be still, and become stunted, as they would in that case be almost sure to button, or to form flower heads so small as to be useless. The beds, where the early celery has been taken up, are prepared by the application of a good dressing of manure, and the ground is well trenched, ready to receive the plants early in the year, when, taking a favourable opportunity in open weather, we turn out our cauliflower plants from under a hand-glass, where, if well attended to afterwards, they will grow freely, and become strong enough to produce good and handsome heads of flower in the month of April—a very valuable acquisition at that season when the winter vegetables are almost exhausted, and the spring grown produce not very abundant.

Parsnips.—When the ground is required for *immediate* trenching and cropping, the manure should be wheeled on to the ground, and the parsnips trenched out, leaving the bed formed either into sloping banks or ridges. If the ground is not required until the spring, the parsnips will keep best in the ground where they have grown.

Young Carrots and Radishes in Frames should be well aired, surface-stirred and thinned, and, if inclined to become too long-legged, or to canker, sift very carefully a little dry dust amongst them; and when water is required use it always in a tepid state.

Young Cucumber Plants should have a very moderate heat applied, and a liberal portion of air. The heat should be applied at the top, keeping it very moderate at the bottom.

Lettuce Plants in Frames must also be well attended to with regard to liberal airing, surface-stirring and dredging, with dry dust.

Mushroom Beds should be formed of dry materials, such as four or five barrowsfull of horse droppings, which have been saved for the purpose, four or five barrowsfull of road sweepings, and four or five barrowsfull of dry husky dung from the stable dung-heap. Let these be all well turned over three or four times, to sweeten in some dry place. If the mixture should be found too dry to ferment sufficiently, then sprinkle it with a little water at the time of its being turned over. Shake it and mix it well together, or, as gardeners say, "*give labour.*" The quantity of materials depends on the size of the beds required. The place where the beds are to be made should be dry at bottom. The materials being in good condition proceed to make up your bed as solid and firm as it can be beat together with the fork, whether in ridges or half ridges, or whatever shape may be thought most convenient. Let the outside be beaten smooth and well with a shovel or spade. Then insert a stick to prove the temperature of the bed by. In about ten days after the bed has been made it will be fit for *spawning*, if all has gone on well, and the heat be found about that of cows' milk, but if the heat be too great defer it for another week, and shake open the bed a little to let off the rank heat. If too cold, add a little fresh materials, and work it up well together. Before putting in the spawn make the beds firm, smooth, and even; then open holes with the hand about an inch below the surface, and eight inches apart every way. Place in each hole a moderate sized lump or handful of bits, and cover it over again with the same dry materials of the bed If there is no fear of the bed being too hot, it may be covered over at the same time about an inch and half thick, with good turfy loam, rather dry and run through a sieve first. When all is regularly covered over, sprinkle the whole with water from a fine rose water-pot, and pat the whole surface down level, leaving it as smooth as a fresh plastered wall. Let it remain to dry off, giving plenty of air to dry it off the quicker. After this, the bed should have a nice covering of any thing like mouldy hay, such as tops and bottoms from the hay rick, or haybands untwisted, or the like. Cover up according to the heat of the beds. If you have any doubt whether it is too hot, let the covering be light.

Routine Work.—Take up any nearly full-grown *brocolis* and lay them in deep, in either east or west wall borders, pretty close together, turning the heads towards the north. Cover their stems well up with earth; leave sufficient room to pass along between the brocoli and the wall, to prune your trees, &c. The earth might be forked up close under the wall, and a row of *endive* nearly or quite full-grown, might be let in with the dibble close under the wall. This endive planting should be done in a fine dry day. Shake off the earth from the roots, and keep the hearts up close in planting, and put the plants as close as possible to each other, to make the best of the situation. A board might be rested on two bricks, between tree and tree, just above the endive, to throw off the wet in case of too much. Keep the earth stirred among the young growing *turnip quarters*, and see that the plants all stand singly, and at least eight inches from each other. Attend to the *sea kale beds* (see last week,) and *asparagus beds* too. Take up *carrots* and *beet root* in dry weather, get them in-door, but they may be packed away any rainy day. Do not stop to pack away when so much wants to be done other ways out-door in dry weather. Let the head, eye, and hand, work together, and plenty will be found to be done.

James Barnes and W.

MISCELLANEOUS INFORMATION.

ALLOTMENT GARDENING.—November.

In consequence of the fearful havoc sustained by the potato growers through *the* disease, it behoves every one, but especially the cottager, to take extraordinary pains in securing the other root crops; for, we need scarcely observe, there will be an extra demand for them in consequence. We offered observations, in our last allotment paper, on the keeping of store roots, and we need not now go over that ground again; we would, however, impress on the cottager and others the propriety, not to say necessity, of getting all those things up and well secured by the second week in November. Those who have them out later must be content to be regarded as either sluggards in allotment work, or very ignorant of the character of those roots, or of what contributes to their long keeping properties.

The *carrot* is, perhaps, the first to suffer; the mere crown is very susceptible of injury from frost; and for this to be frosted, or to be cut away, are two very very different affairs: the first will bring a rot, the latter will heal itself sound. Next to the carrot the *mangold-wurtzel* may be placed. These, too, are apt to receive much injury through the neck or collar, which spreads into a gangrene, or vegetable mortification, as in the carrot; especially if the plants were sown a little too early, and are in what is termed a "bolting" state. The *Swede turnip* is by far the hardiest, so that, if any of the roots *must* be neglected, let it be these by all means.

We have known farmers keep Swedes very well during ordinary winters, by cutting off root and top, and placing them close together (root end downwards,) in a fold, or about the stack yard on the grass sward—the rough grass proving a sufficient protection. This course, however, we by no means recommend; for how much easier is it to pile them up, and throw thatch and litter over them!

We would, for all these roots, select an elevated and *thoroughly dry* spot—shady if possible, and pile them up in a pyramidal shape, about four feet wide at bottom, and tapering up to four feet high; and this done throw a slight thatching over them. The thatching may be fastened down in the most simple way; a pole or two and some pitchcord being the only requisites—or, indeed, brickbats or stones may do instead of the poles. In using the poles one must hang on each side the stack or pyramid near the bottom, and parallel with the ground; and from these, strings of pitchcord must be carried at about every two feet. The weight of the poles, stones, or bricks, will keep the pitchcord at full stretch, and this will secure the thatching and permit the ready escape of water. Dryness is the grand secret in store root keeping; every means should be taken to get them dry, and to keep them so. To accomplish this it is well to wait for a dry windy day; for the wind in November is a more powerful agent than the sun; and to scrape or otherwise clear the roots of moist soil betimes in the morning, and through the afternoon, to secure them in the heat, thatching those stacked before leaving the work.

We have been speaking now of those grown to an extent somewhat beyond the allotment holder, who in general will keep most of his roots in a shed, outhouse, or even in a nook in a cool kitchen, if room should offer; at least his carrots may be so kept.

The *parsnips*, as before observed, may be left in the ground, and trenched out as wanted. We again repeat that it is excellent policy to spread the manure intended for the next crop over the crowns, and in trenching them out at intervals the ground will be ready prepared for a spring crop.

Routine Work.—All these things being duly carried out, the next consideration is to get all the ground possible dug deep and ridged. Before doing this, however, any draining considered necessary should be accomplished, and a scheme of cropping for the next year laid down. We have not room now to go into the subject of rotation of crops, but must waive it till our next paper; in the meantime our readers will do well, we think, to consult the diagram scheme at p. 184 of the current year.

Cow and Pig.—We now wish to offer a few observations on the cow and the pig, for during the summer our papers were necessarily filled with matters connected with the culture of crops necessary for these useful animals, as well as for the household of the allotment holder. One of the first considerations connected with the well-being of the *cow* is thorough cleanliness: the cow is very nice in both her solid food and her drink. Who has not noticed the care with which she sucks, or rather filters, water between her compressed lips? This doubtless serves a double purpose: it not only precludes the admission of extraneous matters—the spawn of water-animals, &c.—but also serves to raise the temperature of the fluid before received on the stomach. The latter at certain periods is by no means an immaterial procedure; for there can be no doubt that below a certain point in regard of temperature the starving fluid would have a prejudicial action on the coats of the stomach. But, above all, how necessary is cleanliness in the stall or "boozy," as the Cheshire folks term it; here a regular system of feeding and cleansing out must be pursued, if continued success is to be looked for. One point we would insist on: never give the cow more food at any time than is really requisite merely because there is plenty, and to spare. This is foolish economy. Cows thus treated are apt to become saucy and over particular, and they will frequently blow over the food with their breath, and turn it about with their horns, until the food becomes quite tainted and dirtied, and then it is in great part rejected. It is much better to give them a moderate quantity at once, and to attend them the oftener. Whatever refuse food is left in their feeding trough or manger should be carefully cleared out once a day at least, and given to the pigs. The best time for this proceeding is, we think, when the cow is turned out—if such be practised—in the morning. The shippon or cow-house being then swept clean, and the doors, windows, or other apertures for ventilation, being set wide open, the place will become thoroughly sweetened by the evening. The cow's hide, too, must be kept clean, any clotted dirt cleaned away, and about once a week a good currying all over the body. Nature teaches the cow that filth must be dislodged, for scarcely a day passes but she will rub herself, if in health, against a tree or a post: however, in many little enclosures it must be remembered there is not a tree; we would always then have a rough barked post in every cow pasture, and there is not a doubt of the cow making use of it.

The proper mode of dieting a cow, also deserves much consideration. At this time of the year much refuse vegetable matter comes to hand, rather suddenly; such as the tops of mangold, Swedes, &c. Now, such given in too great a quantity, is apt to scour; if added to this a second cut of clover, vetches, or, indeed, the aftermath, are material of a highly fermentative character, and all prejudicial when used in the extreme. We say, therefore, use them with moderation, it is better that some of the mangold or turnip tops waste, than throw the cow out of order. However, there is no occasion for waste; the pigs will make away with it. Care therefore should be taken that the cow has a certain amount of dry food daily with the green meat. We should say that not much more than a cwt. of green food can be given daily, with thorough safety; the rest of the diet, of course, made out with hay, oat straw, &c.; using a little linseed, if to spare, for this is a capital thing for a milking cow. One pound of linseed is considered by good judges, as equivalent to nine or ten pounds of green food; and one pound of good oat straw equal to about three or four pounds. The following mode of giving linseed has been recommended by the knowing ones, viz:—10lbs. of straw chaff soaked with two gallons of water, in which 1lb. of linseed and a little salt has been boiled; adding, if to spare, 1lb. of bean meal to the mixture. Now these things are all very good, but it must not be forgotten, that a liberal allowance of good hay, is of itself sufficient to qualify or correct any acidity arising from the liberal use of green food.

We may now advert to early spring food, which is a matter of considerable importance. Of such we may name rye, Italian rye grass, winter vetches, and the Thousand-headed cabbage—not forgetting even the green or curled kale. Rye sown in September, will be fit for cutting in the middle of April, on free soil. Italian rye grass, sown soon after harvest, will immediately succeed the rye; and winter vetches, sown in the course of October, will also come to hand very early in May. The Thousand-headed cabbage, about which we offered repeated advice through our allotment papers, is among the best things for the cottager with which we are acquainted. This is so hardy that it continues growing through the whole winter, at least at mild intervals.

We must now turn to the *pig*, for this may in general be termed one of the main stays of the cottager. Here, again, cleanliness is as desirable as in the case of the cow, although some persons have fancied that because the pig's habits are naturally dirty cleanliness is averse to health. Those who judge thus should consider the vast difference that exists between this animal in a wild state and beneath the hand of man. In the former case it has liberty to make its bed or lair in a fresh place daily; in the latter it is frequently compelled to lie on the same bed with its accumulated filth for many days together, and that, too, in the confined space of a few feet. In the wild state, moreover, much of their ordure is cast when away from their lair altogether. We would advise cottagers, therefore, to make a point of cleaning out their pig-stye twice a week at least; and once in a fortnight we would, after cleaning, wash the whole down with water. The latter process would carry away a vast amount of impurities, and if a puddled hole was formed to receive it the contents would form a diluted liquid manure, which might at once be applied to the cabbages, fruit-trees, &c. At this period of the year most cottagers will have a pig in course of feeding, for the principal portion of this process should be contrived to fall in September and October. Swine, of course, are fed both better and cheaper at that period, for then it is that the greatest bulk of refuse meat comes to hand from the garden or allotment; this, therefore, is an important period with the pig feeder. We have during the last twenty-two years tried all sorts of diet, both of grain and vegetables, and we find it hard to give the preference in choosing between such excellent roots as the mangold, the Swede, the carrot, the parsnip, and the potato. Much dispute has existed as to the various meals—some preferring barley and others oat. For our own part we prefer a mixture of any two or three to a single one, believing that such has a continual tendency to correct any extreme in the bowels, on the proper state of which, like all other animals, so much depends. Amongst the roots we should select the potato as the most generally eligible, next we place the parsnip, then the mangold, and lastly the Swede. Be it understood, however, that we would not attempt to force the culture of any one of these roots to the exclusion of the others on account of such preference; they are all good, and we would rather follow up the culture of those for which we found our soil best adapted, and those considered necessary as a rotation.

Among the meals we place barley as first, next the oats, and then the Indian corn meal, that is to say as to quality. There is, however, another side to this argument. Economy of purchase is the prime consideration, and here we think the Indian corn meal the most economical. We purchased last winter at 20s per load of 240 lbs., but since that the great depression of the markets as to other grain ought to have reduced it very considerably, for oats can now be bought for less than three shillings per bushel, and under such circumstances we should not be content to give more than fifteen shillings for this load of Indian corn flour. A neighbour of ours used damaged rice last winter, at fourteen shillings per load, and speaks very highly indeed of it. Another consideration is the binding character of these meals, for when the pig is nearly fattened the diet is generally made thicker with the meals, and we have known many a valuable pig of some twenty stones weight lost through the heating, and of course binding, character of the food. There is less danger, we think, from barley-meal than any of the others in this respect. Of course the allotment holder who does not keep a cow will take care to gather his mangold leaves, the Swede, &c., for his pig. If he has a store pig we would advise him to give these materials chiefly to it, for the fattening hog should have some good roots.

We now conclude for this month, and in our next paper we will say something about curing bacon, and other matters connected with cottage or allotment economy.

BRITISH ORCHIDS.

I wish you would lend us your valuable aid in endeavouring to bring these beautiful plants into more general cultivation. I have been driving at it myself for years, and have induced about half a dozen friends to make collections. Any person who is fond of flowers will grow a tropical orchid, let it be ever so ugly or insignificant, whilst our own native gems are nearly wholly neglected. The beauty of some of our native species is a great recommendation, and the delightful fragrance of others more than compensate for the little trouble there is in cultivating them. I fancy there is an idea abroad that they are very difficult to manage. I found this the case when I first began to collect them many years ago, but I now manage them without any trouble. I plant most of them in a bed of strong loamy soil, and I always take care, if possible, when they are first moved, to have them dug up with a clod of the soil from their own habitat (birthplace). After once planting I never meddle with them, neither allowing the bed to be forked up or stirred in any way to loosen the soil; as I have ever found that, if meddled with after once being planted, they generally die or do no more good. The roots have the utmost dislike to being touched. Some few I grow in pots, and others on a rockery, but those are very few.

I collected in the neighbourhood of Matlock, in Derbyshire, a short time since, fine specimens of the following:—

Orchis bifolia
,, pyramidalis
,, mascula
,, ustulata
,, militaris
,, maculata
Orchis hircina (Satyrium hircinum)
Gymnadenia conopsea
Ophrys muscifera
,, apifera
Epipactis latifolia
Listera ovata

There are several very nice things in this way found in the south counties. If I knew a good botanist resident in any of them, I should certainly request him to be so good as to look for the following, which I consider real gems in their way, and to myself would be a great prize:—

Orchis fusca (Kent)
Aceras Anthropophora ,,
Ophrys arachnites ,,
,, aranifera ,,
Epipactis grandiflora (Kent)
,, ensifolia ,,
,, rubra ,,

One of the most important things to be observed is the getting of them up from their native habitat. I have collected myself the greatest part of what I grow, and have always been very particular to take with me a good spade, and have taken them up with a good clod of soil, so as not in any way to touch the root; for I have ever found if the roots are meddled with, they seldom continue to thrive. The soil I use is the strongest best loam I can get. In planting, I am very particular to make the soil about them as firm as possible by pressing it well down, and making it as solid as possible. This border I never allow a fork, trowel, or spade, to come near, nor do I ever touch it afterwards in any way to lighten the soil; if the soil is loosened, the plants will immediately be affected, and will soon lose their healthy appearance; they have the utmost dislike to be meddled with after being once planted in a garden. The ***Epipactis latifolia*** I grow rather differently, as I have always found it in loose gravelly, or stony, soil. I, therefore, under this put a drainage of broken crocks, or stone, and mix with the soil a small quantity of brown bog soil, in lumps about one and a half inch in diameter, and some broken stone. This plan answers well, and I have some plants which I have had for many years still doing well with me.

When friends have sent me plants I have always given them directions how to take them up, and requested they would send me word the situation in which they were growing; and from the soil sent with them I always knew how to plant them. Whenever they have not strictly followed these directions, the plants have not done well, and have frequently died. There is one most beautiful variety which grows in the wettest part of Ashton moss, which has hitherto mastered me; it is a delicate white one with a yellow eye, and most deliciously scented; but I have now thought of a plan which I am sure will answer. I have mostly found it growing with its roots in the sphagnum moss, with part of the fibres actually in the water. This I will plant for the future in a broad mouthed pot, in a compost of bog and sphagnum, in a similar way to what I grow my exotic plants, and let it stand in a saucer of water, and I have no doubt of its doing well. In hot dry weather I always water them.

With respect to shading them, the only sorts which at all require it are the following: these I have ever found growing the finest and flowering the best when shaded by trees:—

Orchis bifolia
Neottia nidusavis
Cypripedium calceolus
Listeria ovata
Epipactis latifolia
Malaxis paludosa

This latter one should have some bog and sphagnum around its roots, and be well watered in hot dry weather.

Cypripedium calceolus
,, spectabile
,, ,, alba
Cypripedium pubescens
,, acaule

These I grow in large pots in a similar compost to what I use for my tropical orchids, only that I break the bog smaller, and press it firmly about the roots. I *never* repot them unless I am absolutely obliged to do so, and I then take care, if possible, not to touch or meddle in any way with the roots. The following is a list of what I have been growing for years:—

Orchis bifolia
,, pyramidalis
,, morio
,, latifolia
,, mascula
,, maculata
,, albida
,, hircina (Satyrium hircinum)
Gymnadenia conopsea
Ophrys muscifera
,, apifera
Neottia nidusavis
Listerea ovata
Gymnadenia viride
Epipactis Latifolia
Malaxis paludosa
Herminium monorchis
Cypripedium calceolus
,, spectabile
,, alba
,, pubescens
,, acaule

I have also a few from Scotland, the names to which I do not know at present.

G. T. DALE, *Longsight, near Manchester.*

MY FARM-YARD.

WHAT a pleasing sight does this title present to our imagination: the sleek well-fed cattle; the sow, with her litter around her, half-buried in the clean straw; the chickens scratching about, trying to find the grain which has escaped the merciless strokes of the flail; the ducks diving in the clear stream which runs at the bottom of the yard; the turkeys strutting about, looking so consequential, as if they knew they were enjoying more than neighbour's fare; the guinea-fowls with their monotonous cries; and, to complete the picture, the noble peacock, perched on the bough of the "old oak-tree," spreading his tail of many colours, and "looking down with scornful glances on the ignominious group beneath." Is not this a pleasant, peaceful picture, worthy a place in every English person's imagination? I am sure you agree with me that it is; and, although we cannot all be the owners of such a farm-yard, yet we may, one and all, have some of its inmates, and my object will be to give you a few hints and directions respecting them. I will begin with the one I consider of most importance to my readers.

THE PIG.—I hope by this time my cottage friends have purchased their's, and, as this is the time most people are putting their pigs up to fatten, I think I cannot do better than tell you what I consider, or rather, I should say, what I have found (for I have tried most plans,) the best method of feeding them; therefore, I will at once conclude that you have a couple of pigs about six months old (they always fatten better in pairs), separated from your other pigs. Save for them the best of your wash, and, as you have now dug up all your potatoes, you have, of course, picked out the small ones for your pig. Do not give these to them raw, but boil them in a copper with slices of mangold-wurtzel. When the potatoes are soft mash them up, sufficiently to break their skins, which will prevent the pigs wasting them. Let this be their food for the first fortnight. You know the proverb, "Necessity is the mother of invention," therefore, if you do not own a copper you will soon find something to answer the purpose, but, by all means, boil your potatoes. Also, if you have grown Swedes or carrots in your allotment gardens, you will, of course, give those to your pigs instead of the wurtzel. At the end of the fortnight you will see your pigs looking round and well. Then, instead of giving them barley-meal, try the system I follow, which is, finishing them on whole oats: these you can buy, at the present time, for 2*s* 9*d* a bushel. One bushel a week you will find sufficient (in addition to the potatoes, &c.) for the sized pigs I have supposed you to have. If your pigs are a quick-feeding sort (and no others ought you to buy), you will find that in five weeks from the time you first began to feed them well they will be ready for the butcher. Give them the oats when their troughs are empty, so that they may swallow it dry. A little salt mixed with the potatoes sharpens their appetites. I have just now killed a pig fatted on this plan (with the addition of a little refuse milk from my dairy), and the pork is quite equal to any that has been fatted on barley meal, and at very much less expense. Some future day I will give you some receipts for salting the pork, for, however well your pig may have been fatted, the bacon will not be worth eating unless it has been properly cured.

Poultry.—According to my promise I now give you a few more hints as to the management of your poultry. I hope some few of my readers followed the advice I gave them last month; if so, you have by this time a sufficient number of eggs to "sit your hen." I suppose your "first hen" will be a pullet, consequently she will not cover more than nine eggs. Now, if you have had any luck, you have at least 18 eggs. I can fancy I hear you say, "What nice breakfasts the other nine will make." Not so fast, my young friends; remember—"Who dainties love, will beggars prove." Try hard to sell your eggs. If there is a gentleman's house in your parish take them there, and I dare say the lady will give you 6*d* or 8*d* for them, if you tell her you are trying the poultry plan from The Cottage Gardener. When once you have pocketed the money, put it carefully by, and next month I will tell you what to do with it. Now, to return to the nine eggs, put them into an old hamper or behind a bundle of wood that will not be moved, and place your hen on them. Look carefully about to see if there are any rat holes; if you find one, collect some broken glass and stop it up with that. I have had whole nests of eggs run off with by these mischievous creatures. There is also another enemy, a two-legged one, you must guard against—I mean a young child. I do not know if I have not had more losses from a little child's fondness for watching and taking care (as she called it) of the hen, than I have from the four-legged enemy. Try and keep the hen quite undisturbed; she will come off her nest when she requires food, but have it ready for her, so that she may not be long off the nest. Be careful always to have clean water for the poultry, and save all the ashes you can; put them in a corner under the hedge; you will soon see how pleased they are with them. Always have the place they roost in cleaned out once a week. Nothing thrives without cleanliness, and I dare say you remember the old saying, that "Godliness and cleanliness are very nearly related to each other;" and, now, wishing you good luck, I will lay down my pen till next month. C. M. A.

THE POULTRY-KEEPER'S CALENDAR.

November.

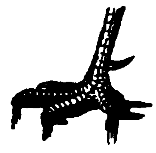
By Martin Doyle, Author of "Hints to Small Farmers," &c.

The cottager who has a garden and yard ought to keep poultry; the one will supply much food for them, and the other, besides affording the necessary space and accommodation, will obviate occasions of dispute which often occur between neighbours when their cocks and hens break bounds and pay unwelcome visits.

Fowls.—We begin with the most important. In Great Britain the rural cottager's stock of fowls has been limited to six hens and one cock, either because his means do not permit him to keep a larger number, or because his employer fears the depredations of his labourer's poultry on his corn fields, and therefore forbids him to keep more than a small number. From this cause the *Scotch hind* in particular is almost universally restricted to keep but six hens and one cock, and from this usual rule has probably arisen the common *but mistaken* notion, that the cock should not have more than half-a-dozen concubines, whereas by the laws of nature he might be indulged with a score of them, if he could preserve domestic order among so many. At this season dry and warm lodgings are very necessary for fowls. Their yard should be paved or covered with fine gravel or ashes, and if practicable exposed to the sun. Fowls become miserable and ill in cold moist weather, if they have not a dry and warm roosting-place at night, and shelter by day. Pip, roup, diarrhœa, rheumatism, and gout, are common effects of the influence of cold moisture upon their lungs. Therefore the rafter of a warm cottage, and a nook for laying near the chimney, affords health and fecundity to the poor man's hen, which are not enjoyed in winter by the fowls of the richer one, who keeps his poultry in a cold outhouse. Warm food, too, causes hens to lay more frequently.

But besides temperature, hens are much influenced in laying at this season by the period at which they have moulted. Old fowls cast their feathers later in the season and more slowly than younger ones, and recommence the laying, which had been interrupted during the period of moulting (which occasions physical derangement), later than hens which had moulted earlier. That the laying is chiefly stopped by the changes which take place in the constitution of the hen while she is casting her old feathers and producing new ones, appears from the fact that hens lay freely in February and March, which are actually colder months than those of November and December. Hens that have moulted early in autumn will sometimes be disposed to sit at the present season, in which case a brood may be reared for the Christmas markets, when chickens are worth from 7s to 10s a couple.

We shall reserve our observations upon hatching until the spring—the usual season of hatching. Among the common barn-door fowls *the Dorking breed* holds perhaps the highest place. It is larger than the ordinary sorts, and distinguished by having two toes behind, besides three in front. The body is round and plump, and the colour both of the plumage and legs is frequently white. The flesh is delicate, the hens are good layers, and their eggs, though somewhat smaller than those of *the Spanish* and *Poland* breeds (which are also highly prized) are large. Although often entirely white yet they are more frequently dappled with grey. The five toes, without counting the spur, however, is the chief distinctive character of this variety. It is the *Gallus pentadactylus* of Temminch, and is also spoken of as the "five-toed" kind by two other naturalists, Buffon and Bechstein. Hundreds of years ago Aristotle, Columella, and Pliny, mentioned a variety with a similar number of toes, and it is curious that they also were celebrated for being good layers. Our drawing gives the portraits of a pair of first-rate Dorkings.



The flesh of fowls which roam about the poultry yard, and feed on corn with a natural appetite, is assuredly the best flavoured; yet, since grossly heavy poultry is in market demand, the cottager's family will find it beneficial, at this time of year, to cram fowls. For this detestable purpose a mixture of meal, milk, and fat of any kind is necessary. In the course of three weeks chickens may be rendered very fat, and from a month to six weeks' regular cramming is sufficient to render any fowls *beastly* fat. Seclusion from light and society aid the progress of fattening, by causing continued lethargy.

CAPONS.—The loss sustained in flesh and weight by not rendering the male fowls capons is very great. The matter is simple and easy, and the result of the process is, that the birds may be soon increased in weight to 8lbs. or even 10lbs In former times capons were as common in England as they are now in France. Their flesh is very tender and delicate.

TURKEYS.—In Ireland, where the climate is less favourable to the rearing of these birds than that of England, which are so tender in their first stages of growth, though remarkably hardy when reared, large broods of turkeys are reared every year. Why is not this so in England, where they might range over such extensive stubble fields in autumn, and be at all times as cheaply maintained as in Ireland? They require (until put up for high fattening) but corn in the morning, if they have the privilege of seeking grubs and insects, and seeds, and green food in the fields. Turkeys may be fattened by cramming, to the weight of 25lbs. or 30lbs.; but young birds of far less weight are much more delicately flavoured, especially if fed in the natural way. Swedish turnips boiled and mixed with bran will now assist in the keeping of turkeys, until they are put up to fatten with barley meal and potatoes, or meal mixed with parsnips, Jerusalem artichokes, or Swedish turnips, boiled. It has been calculated that two shillings' worth of meal and potatoes is enough for a month's supply of food for each bird, to fatten it to 18lbs. weight.

The most prevalent disease of full-grown turkeys is the *pip*, which forms a scab near the tip of the tongue, that must be taken off with the nail. Warmth, cleanliness, and nourishing food are the best remedies for the diseases of turkeys and fowls. Mr. Richardson's advice on this head is admirable. "When your poultry are sick, try to find out what is the matter with them, and then learn what is best to do for them. If they are cold, warm them; if wet, dry them; if they do not digest their food, give them a different diet; if they have the opposite ailment from rain or cold, or too much relaxing food, give them corn."

DUCKS AND GEESE.—These useful hardy birds are troubled with few diseases. We have only to give them food enough. Ducks pick up snails and grubs in the garden, where they are often very useful, and both they and geese can be maintained and fattened with very little aid beyond that which garden roots, cabbages, and lettuces, chopped up with bran, supply. Ducks are so gluttonous, that they will fatten on any offal; but barley or oatmeal, with potatoes, is the best diet to prepare them for the table.

Geese should be fed for the last three weeks on *oats* twice a day, and barley or meal, with or without potatoes, and milk once. The high-flavoured and enormously large liver of the goose, so prized in Paris, is brought to that diseased and unnatural state by barbarities which shall not be detailed here. As a general rule, with regard to *economy*, poultry should be quite fat before they are killed—it is at the close of the fattening period that the food *tells* most. A lean bird, like a lean pig, will eat much more than when in good condition, and without *showing* the feeding. The frame-work of bones should be fully filled up, and covered with flesh and fat before the bird is killed, else there is loss sustained.

THE BEE-KEEPER'S CALENDAR.—Nov.

By J. H. Payne, Esq., Author of "The Bee-Keeper's Guide," &c.

FEEDING.—By this time hornets and wasps will have finished their work of destruction and pillage, each hive, therefore, must now be carefully examined and weighed, and should any be found having less than 18 or 20 lbs. of honey, supply them immediately with a sufficient quantity to bring them up to that weight.

FLOOR-BOARD.—Clean the floor-board of each hive by scraping it with a knife, and brushing it afterwards with a dry brush, and see that each hive stands firmly on its pedestal, and is well defended against wet; and, for effecting this (especially during winter), I have never yet found anything equal to the milk-pan, heavy and unsightly as it unquestionably is. I have seen covers of zinc used, but they are too light, and frequently blown off by the wind, and one night's heavy rain at this time of year will very nearly, if not quite, destroy one of the best stocks A gentleman of my acquaintance has had covers of cork made at a cost of 30s. each, and very elegant things they are, but, after about 14 months' trial, they are abandoned because they will not effectually keep out wet.

ENTRANCES.—The entrances to the hives must now be narrowed so that only two or three bees can come out at the same time, for, at this season, mice are very likely to lodge themselves in the hives, and they are very hurtful and destructive to the bees, for having once fairly lodged themselves in a hive, its entire destruction will be effected by them in a few days. Mr. Huish relates an anecdote of having found a dead mouse in one of his hives. He says, "In the month of December, on inspecting my apiary, I perceived a hive to be in an unusual bustle, and the bees in great agitation. I was convinced that some accident had occurred in the interior of the hive, and I resolved to examine it; to my great surprise, I found a dead mouse on the stand, and it was almost covered with propolis (bee-bread). I at first resolved to remove this nauseous object, but on more mature reflection I was not willing to forego the opportunity of experiencing by actual observation one of the most profound acts of foresight and wisdom which can possibly be found in the works of the animal creation. What power is that which taught the bee the necessity of covering the dead mouse with a plaster? It might have been thought sufficient to kill it, that their property might be saved, and then leave it to waste away in the common process of putrefaction. But were this process to be allowed to take place, the health and safety of the whole hive would be endangered: to prevent, therefore, this occurrence, the body of the mouse is, as it were, embalmed in a case of propolis, and the object rots away without emitting any offensive odour." I have myself occasionally found a snail fastened to the floor-board in a similar manner. But a greater enemy to bees during the winter months than even the mouse will be found in that little marauder, the blue titmouse (*Parus major* of Linnæus), which may be said to stand foremost as their enemy. Mr. Purchase says, "she will eat ten or twelve bees at a time, and, by-and-by, be ready for more. When she comes to the hive and finds none, she knocks with her bill at the door, and, as soon as the bees come out to inquire the cause, she catcheth first one and then another, until her belly be full." This I have observed in an apiary of about twenty hives, in a village nigh to me, for the two last winters; the entrances of the hives by the end of the winter having the appearance of being gnawn by rats, which has all been done by these birds Shoot and trap them in the winter, and destroy their nests in breeding time.

THE PHYSIC GARDEN.

By a Physician.

No. I. Introduction.

In boyhood, when hope was young, and not a cloud appeared to shadow and to dark my future; even then my delight was in the leafy woods, the green and laughing fields and the narrow devious lanes around my home. I loved, fancy led, to wander in the lonely valley, with its green hills and silvery stream, and to seek for flowers and curious herbs. Gathered with eager curiosity, they were then a wonder and a mystery to me, and it was a labour to unravel with the aid of my first kind teacher, my now dear friend, their botanical characters, and to assign to each its own appropriate place in my juvenile herbarium. That herbarium remains to me still, and tells me of my youthful dreams, of the aspirations of my prime; alas! it also tells of time mispent, talents misapplied, warnings neglected, and blessings despised. It speaks too in many a tone, which still lingers soft and sweet in my ear. Dear Anna! the gowan you pulled and gave me blooming fresh on the banks of Spey is now, even now before me. Withered and decayed I love it still; but where, alas, is that gay, that happy laughing throng, amidst whose glee and meriment that flower was in silence given! I am grey and sinking into years, a fretful, peevish man; you have other and far off duties to perform, and of the many, there are few who have not passed into their dark and silent graves.

But why look back? 'Tis only the unhappy do so, for there is no happiness without hope. Well, well, as life advanced destiny summoned me to sterner duties; and after the usual episode of an University life, I arrived at the "Summos Honores Medicinæ," (highest honours of medicine,) and became a member of that learned profession which ministers more than any but one to human happiness, by relieving the physical sufferings incident to humanity. Years have silently advanced upon me; and now, after a happy dispensation of events, I have retired from the cares and anxieties of the profession; and, as "the child is father of the man," the tastes and pleasures of my youth revive within me, and a garden is my chief delight. I occupy myself, however, truly in culling simples, and in cultivating those familiar herbs which are known to relieve pain and sickness when judiciously administered, and which may well be held as sacred, in the "brief, but simple annals of the poor." It has been suggested by a German philosopher that there probably exists in the yet unknown virtues of some plants a specific remedy for the cure of every disease; and the progress of science seems to justify the belief. The most efficacious remedies are often those which are the most simple. I, therefore, cultivate the plants and herbs which thrive in every well-managed cottage ground; and I aim at culling simples, and obtaining remedies that shall assuage the throbbing of the fever-stricken brow; allay the anguish which attends upon the sense of intolerable pain; and which shall restore health to the afflicted and the sorely tried.

My garden is of no great extent; some dozen notices will probably describe its contents, and their applications in disease and sickness; but yet it is abundantly useful to my neighbours. Nay, the village doctor himself sometimes borrows from my beds, and, though somewhat jealous about what he calls my unprofessional conduct, we are, upon the whole, mighty good friends; for, to tell the truth, he somewhat leans upon me. It is wonderful how much may be produced from a small plot of ground well managed; but here I must premise that to cull simples, and to prepare and administer their products with success, require both skill and experience. It is a task well suited to a physician like myself, who can afford to sit down under the tree of his old age, and devote himself to such a speciality.

OUR VILLAGE WALKS.

(No. 3.)

Autumn is advancing rapidly. The equinoctial gales are blowing down the apples and pears, and the heavy rains that accompany them are softening the earth, and soaking the fading leaves, so that every day the foliage looks richer and more brilliant, though falling more thickly on the ground. Autumn is a season of many tongues; to whichever side we turn we see something that addresses us powerfully. Harvest—the rich, merciful, harvest is over, and the gleaning season too is passed; but the fields are again in activity, and the slow tramp of the patient horses is enlivened by the ploughman's whistle as he labours in the rough furrow to guide the plough. What a deeply interesting sight is a stubble-field with the plough turning up the dark moist soil, preparing it for the good seed, hereafter to bring forth "some an hundred-fold, some sixty, some thirty." What an affecting picture of the work of God in the heart of man—more hard to plough up than the hardest clay, and needing more the sharp teeth of the harrow than any weed-choked soil our labourers ever till! We rebel against repeated chastenings, we feel God's dealings with us, at times, to be harder than we can bear; but when we watch closely the operations of the husbandman, and mark how much the land requires to be harrowed and cleaned, to return "seed to the sower, and bread to the eater," we shall cease to wonder at the things we suffer, and adore the patient persevering Hand that breaks up and cultivates the stony ground of which our hearts are formed. Had not our Lord wisely as well as graciously taught His followers by the simple things of nature and the daily occurrences of life, we should lose perpetual instruction and profit; for though some of His exquisite allusions are to customs peculiar to the East, yet abundance belong to all countries and all people, and beautifully convey to the understanding of the poorest man the rich meaning contained in every word our Lord and Master spoke.

The apple-gathering season is arrived, and all the cottage gardeners will be busy whose trees are in good bearing; but this is not generally the case, at least in my neighbourhood. We have had a sad falling off in this most valuable fruit for the last three seasons; in the first instance, trees that never failed to bear an ample store of fruit never put forth *one* blossom, and although there has since been abundance of beautiful bloom the fruit has been very scarce, and *this* year the trees I speak of do not bear one apple. Previously to the first failure the winter had been so extremely mild that it seemed to me, in my ignorance, as if the trees had not enjoyed sufficient *rest* to form and expand their beautiful blossoms when spring returned; however this may be, they have never done well since, and the loss of the fruit is really a serious one, and deprives both rich and poor of much enjoyment during the winter months. Apples, when put away for winter use, should *never* be wiped dry after they have sweated. This I learnt from a very intelligent man who had been for some years a fruiterer in London; he said it was a great mistake to remove the coating of moisture, which, by drying on the fruit, tended rather to its preservation than decay. We have for many years followed his advice, and certainly our apples have kept *quite as well*, and we think even better, than when we carefully wiped and dried them; the wiping process is such a labour where apples abound that it is a real benefit to escape it, even supposing apples only keep as well and not better than they did before, and this, I can undertake from my own experience to say, they do. They are a truly valuable fruit in every way, and to the sick poor a few nicely baked are a real enjoyment, as they cool the parched lips and quench the burning thirst of many who have nothing beside their bed but a cup of water, or what they call "bread-tea." The rich are often little aware of the sufferings and privations of the poor, and how much relief they might afford by what in their abundance they think nothing of. A few baked apples, a jug of apple-water, or a pot of apple-jam, are useful and grateful to those who are sick and possess *nothing*. Apples likely to decay, or not in themselves good keepers, if pared and cored, and boiled down with rather less than their weight of brown sugar, make a pleasant jam for common use, and prevents the loss of so much fruit; apples sliced, without paring, into a large tea-pot, with a little sugar and lemon-peel, and then covered with boiling water, make a cooling and agreeable beverage for invalids; and these are all made with little expense and trouble. Those who possess that excellent apple the Nonpareil, may make, in the simplest way, a delicious preserve, quite fitted for deserts:—pick out all the smallest of the apples when they are quite ripe; rub them clean, but neither peel them or remove the stalks; put a teacupful of water into a stone jar, and then a layer of fruit; between every layer of fruit sprinkle *good* brown or white sugar rather thickly, and fill the jar in this way; a few strips of lemon-peel should be added, according to the quantity of fruit; tie the jar down closely, and bake it till the apples are soft. This is a delicate and excellent preserve, but it must be made with *Nonpareils*. To those who dare not venture to eat uncooked apples I would recommend the Ribstone Pippin carefully *baked;* it is then harmless to the most delicate stomach, and excellent in itself; but to all *but* invalids that queen of apples must be preferable in its own rich ripeness.

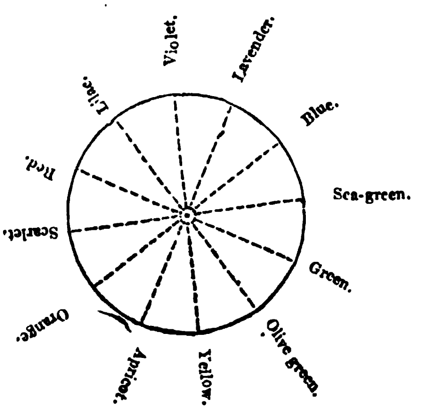
The apple-tree is a native of the east. It is spoken of in the first great history of man as among those fruits that the Lord declared by the prophet Joel should be destroyed by drought as a judgment upon the rebellious people. Apples were very highly esteemed indeed among the Romans, and as many as 29 kinds were cultivated in Italy about the beginning of the Christian era. The profit arising from these highly valued trees was then so great that it gave rise to the invention of grafting, by which means many varieties were obtained, and some are spoken of by the writers of that period as remarkable for their fine qualities. England can only boast of possessing the wild crab as a native fruit, but it is the stock upon which most of our finest apples have been raised, and its blossoms add to the beauty of our wild and graceful edges in the early summer. The Romans are supposed to have introduced the apple into this country, but its present name is derived from the Saxon word "aoppel." The Pippin was not brought into England till the year 1525, when it was first planted by Leonard Marschal in the little village of Plumstead, in Sussex. The Pippin is so called from the small spots, or pips, which generally mark it. The cottage gardener may increase his stock of apple-trees by following the fashion of our brethren in far distant China, and thereby obtain fruit safely and very quickly too, which is a great consideration. The Chinese strip a ring of bark from a bearing bough, about an inch wide, and then put a thick lump of very rich earth, mixed with cow-dung, round the wound, binding it fast to the branch with a piece of sacking; to keep it constantly moist they have an ingenious way of fixing a vessel of water above the ball of earth, with a small hole in it, so as to allow the water gently to drop constantly upon it; but if this cannot be contrived the ball may be frequently watered by the hand, that it may never become dry. The roots strike out into the soil just above where the bark was stripped off. This operation must be performed in the spring, the branch sawn off and planted when the leaves fall, and the following year it will bear fruit. This is worth trying by those who may not have heard of this plan before; but I believe it has been practised of late with very good success. I am sure that if cottagers cultivated these useful trees more than they do, and with some care, they would find them a source of profit as well as a household good; and if they trained them as espaliers, they would beautify the little garden without injuring it by their shade.

The apple-tree is peculiarly interesting to the Christian's heart, as being employed by the church of the Old Testament in the figurative language of the east, to describe the beauty and excellence of her Redeemer. A spreading apple-tree, loaded with its bright, delicious fruit, may bring strikingly before us that blessed "shadow" under which our souls may rest in peace and safety, and the sweetness and richness of the Redeemer's love to all who will "taste and see that the Lord is good." The orchard and the garden, the field and the wood, hill and valley, unite in sounding in our ears great and precious truths. Let us learn their expressive language, that we may understand the wonderful things they say.

COMPLEMENTARY COLOURS.

SOME of your readers may wish to discover the opposite or complementary colours, without subjecting their eyes to the trial suggested in one of your leading articles some weeks back, and such readers may find the following plan useful:—Mark three equidistant points on a circle, and mark them severally with the names of the three primary colours, *i.e.*

red, blue, and yellow; next to them place the colour which each neighbouring two make together, and you will have the complementary colours opposite to each other. The plan may be carried out through every variety of colour and shade, and a complete chart formed by a rainbow ring carefully constructed on the principle.



Thus, blue and orange are opposite or complementary colours; scarlet and sea-green, and so on.

Floranica.

EXTRACTS FROM CORRESPONDENCE.

Sisyrinchium anceps.—I see one of your correspondents has found *Sisyrinchium anceps* or *Bermudianum* in a wild or naturalized state in this country (Corfe Castle). It was probably the former species, a specimen of which, found in Ireland in a thick wood, I sent to the Botanic Society of London in the year 1845. The discovery excited a good deal of interest at the time. I have not seen any works on English botany published since that date, I know not, therefore, whether the best authorities consider the plant a native of the British Isles or not. In connexion with the above, I may mention that *Spiranthes autumnalis* grows in abundance on a grass plot in front of Antony House, the residence of W. H. Pole Carew, Esq., in my own parish. The account I sent you of the *potatoes* in this locality was falsified, I regret to say, before you printed it. The murrain has made sad ravages, though far less than in former years. Mine were planted in March without manure. The produce has been small, but very free from disease. The sort is locally called "Snowdrop;" it is literally a ball of flour. Will you allow me to correct a decided *ecclesiological* error at p. 305. The *rood-loft* is a gallery over the *Rood-screen*, in the centre of which was erected the great rood or cross, usually, in later times, a crucifix, which was a fixed, and not, as you imply, a moveable, piece of furniture. Rood-lofts are very rare in England, having been mostly pulled down by the Puritans.—Rev. Henry L. Jenner, *Merrifield, Torpoint.*

Scarlet Runners, Dahlias, Fumigating. — I should like to press upon your cottage readers, at this season of the year, the necessity of preserving the roots of their *scarlet runner beans;* the advantage I have reaped from this practice is astonishing. The plan I pursue is merely to cut them level with the earth, when the frost has stopped their progress, and cover the roots with three inches of finely sifted coal-ashes; the consequence is, that they shoot forth early in spring, and we gather a full fortnight before those grown in the ordinary manner from seed are in the market, and our produce is, at the least, fourfold. I would also strongly recommend the same plan in reference to *dahlias*, to all those who may not have time or convenience for storing the tubers. I have tried it myself, and found it to answer admirably; indeed, my dahlias of last year which underwent this treatment were infinitely superior to those I stored in the usual manner last winter; 'tis true I don't know what may be the effect on the dahlias if allowed to occupy the same spot for many consecutive seasons; but our friend, Mr. Beaton, will, perhaps, give us a line some day on that head, as storing the tubers, unless one has a very dry cellar, and time to attend to drying and packing them, is really a very troublesome and hazardous affair, especially to amateurs, who can catch an hour only now and then. By-the-by, whilst on the subject of economy of time by amateurs, I will, if you will kindly accord me a little more of your valuable space, just tell you my method of "*smoking*" *my greenhouse:* for, multifarious as my occupations are, and great as is the demand on my time, I am constantly studying how to perform the various little horticultural operations in the most efficacious and effective manner. Mr. Fish, a short time since, kindly gave us very clear and specific directions for this operation, which I have tried again and again, but unsuccessfully; therefore I conclude it is more suited to a large than small house; as, at this season of the year, one fears to shut up much heat which would be emitted from his large pot of burning embers in a house so small as 8 feet by 10 feet, and 14 feet high; and embers sufficient to half fill an 8-inch pot, I find are cold before one has time to place it and strew the tobacco over; at least I found it so, notwithstanding I made every preparation for draft, and in addition inserted a small gas pipe in the hole at the bottom of the pot, with its nether end out at the doorway, laying flat on the ground, and blowing through it till I was black in the face and almost exhausted, with all the zeal of an enthusiastic amateur, quite in despair at the ravages made on his favourites by the invidious "fly." Now, then, for the "operation." I procure, say half a pound of common tobacco, a sheet of brown paper, and 1 oz. of saltpetre; the saltpetre I put into a pint of hot water, and soak the paper in the solution, sprinkling the tobacco well with it at the same time; when paper and tobacco are thoroughly dry, I cut the paper into slips of two or three inches wide and about fourteen or sixteen inches long; along each piece of which I strew about half an ounce of the tobacco, rolling it up diagonally, as a cigar is rolled, making it about eight inches long. I thus make about sixteen "cigars" with half a pound of tobacco, and when I find the enemy increase I take two of my "cigars," stick one into the earth on each side of my "house," light their tips, and away I go, certain that all will end well without watching, puffing, or dirt of any kind; and the beauty of it is that it is done in a minute; it requires no raking the kitchen fire out, no burning fingers and thumbs with the red hot flower-pot, nor indeed any nuisance whatever. A pot of earth is a capital thing to stick the "cigar" in when there is no border in the house. I find it sufficient for my house, but of course a larger space requires more. It is necessary to keep the "cigars" perfectly dry. In conclusion, allow me to say that I think an admirable thing might be made of it, if some one would take up the subject, and invent a "greenhouse fumigating cigar."—W. Savage, *Friary Cottage, Winchester*.

Lilium Lancifolium Culture.—I some time ago sent you the proportions of the different ingredients of my compost for these lilies, which you approved of. I bloomed this year 14 bulbs, in pots 12 inches across on the top, tapering a little towards the bottom, and 13 inches deep. Unless the pots are deep, there would be too little room for the earth, for there is much drainage required; and, in order that the stem fibres may have nourishment, the apex of the bulb must not be nearer the top of the pot than 3 inches. Mr. Groom considers this arrangement as to the stem fibres is necessary for the flourishing of the plant. Indeed, I know it to be so.—Dianthus.

Oleander Cuttings.—I, some few weeks since, wrote to ask if you could tell me any way of striking the oleander, so as to have it *bloom* in the spring. As you did not reply to my query, I concluded you were not able to do so, and now I have found the plan I named, and have pleasure in sending it you, if you think it would be worth inserting in your useful journal. During September and October prepare a quantity of two or three jointed cuttings by removing the lowest leaves, and making the peel of each, immediately under the joint, perfectly smooth. Place an inch layer of broken potsherds as drainage at the bottom of a pot six inches broad, upon that a coating of moss, then a compost consisting of one part reduced turfy loam and three parts of heath mould. Press this mixture firmly into the pot, water it, and make as many holes in it close around the side of the pot as there are cuttings; into each hole pour half an inch of writing sand; set a cutting upon the sand in the hole so deep as to be at least midway between joint and joint, then fill the holes with sand, and cover the entire surface of the soil with a half inch layer of the same. Saturate the whole with water, and see that the cuttings be quite fixed and immovable but with some effort; *upon this close contact of plant and soil depend much of the future success.* The pot of cuttings may be kept in a heat of from 50° to 55° during the winter, and many plants will be found perfectly rooted by spring. Among the cuttings taken from a full headed strong plant, there will, perhaps, be some that have the heads of future bloom produced among the upper leaves. Young plants may thus be obtained to flower in April and May.—L. R. Lucas, *Louth*.

[Many thanks. If the above is a quotation, we should have liked the name of the work from which it is taken, that we might acknowledge it. Two things are essential to the success of this experiment, viz., that the flower buds be perfectly formed before the cuttings are taken from the parent plant, and that the heat during the spring does not exceed 60°. After all, the practice is more curious than useful. A cutting, or rather an oleander, with only "three joints" of wood and half a dozen flowers on slender footstalks, will not be much. It is needless to observe that if the parent plant were subjected to the same heat during the whole period, superior flowers would be obtained as early, although this might derange the future growth and bloom of the plant. The principle is the same as that recommended for making autumnal cuttings of the hydrangea.—Ed. C. G.]

TO CORRESPONDENTS.

⁂ We beg of all correspondents to address their letters to the Editor and not to the Departmental Writers; it saves time and trouble.

Filberts not Bearing (*J. H. R.*).—How can we possibly tell you the remedy without knowing the present treatment and what soil they grow upon?

Scarlet Geraniums (*M. N. O.*).—You ask "Does Harry Moore (see p. 5) cut back the stems as well as cut off the leaves previously to storing his plants for the winter?"—Harry Moore does not cut back the stems of these till April, unless any of the tops damp, when that is removed as soon as noticed. When the buds begin to push in April is the best time to cut them.

Gladiolus Roots still in Flower (*Busybody*).—The gladiolus will take no hurt for a month yet; all the late ones may safely be left in the ground till the frost cuts down their leaves, then they are to be taken up, dried, and stored till the end of February. It is only the earlier gladiolus and the dry bulbs from the seed shop that are planted or potted in October.

Potatoes (*W. W.*).—You ask us to recommend you a change of seed, but we cannot aid you better than by saying cultivate the earliest ripening kinds; Ash-leaved Kidneys and Rylott's Flour Ball cannot be excelled. Planting Walnut-leaved Kidneys in autumn does not answer; the plants are not so forward in production as if the sets are put in in February.

Wintering various Plants (*Ibid*).—You must not sow *Rhodanthe manglesii* until next February. *Zauchsneria californica*, *Weigelia rosea*, and *Forsythia viridissima*, will stand out of doors safely during the winter. *Calandrinia umbellata* seeds so freely that you may leave it out, if on a rock work or very dry situation, and if it dies your seeds will soon replace it; with us it lived in pots amongst hardy alpines that were slightly protected by a hedge, and a few dry boughs thrown over them. *Mesembryanthemums* will not stand out, except a few of the very woody ones, and they only in a mild winter and very dry soil. The *Portugal Laurel* will thrive in any moderately fertile, light, well-drained soil.

Fruit-trees Failing, &c. (*P. W.*).—You must look to other remedies than pruning to restore your French crab. Pruning alone will not recover a tree out of condition, neither will it irreparably injure one in condition. Perhaps your tree has penetrated an ungenial subsoil: search for, and cut through, any deep roots immediately, and apply six or eight inches of manure on the surface, to encourage the upper roots. We fear your case of pears rotting, and dropping before perfect, is referable to a bad subsoil also.—For *Carrots*, and similar root crops, trench and ridge your unpromising heavy soil now for amelioration by frost, turning in raw manure at the bottom. In March break it down, and endeavour to incorporate plenty of sand, fine coal ashes, &c., with it for a foot in depth, adding a little very old manure. As to the best mode of treating *fresh dung*, keep a heap of common soil or sand by your manure. Let your man make a point of levelling the heap once a month,—say the first Monday of each month, for "what is done at any time is done at no time;" then soil it over three or four inches *thick*, and so repeat it. There is no occasion to cover daily; we think that a fermentation is beneficial, as to breaking down its texture, provided it does not rise higher than 80°. The trifling waste of gases at this pitch is, we think, compensated for by an uniform texture in the manure. There are more scientific plans, but this is a good off-hand one, and which all may practice.

Wintering Verbenas in their Bed (*W. H.*).—We have seen verbenas live out a hard winter in dry poor soil. Cut them down to within three inches of the ground; scrape off a little of the surface soil between the plants, and lay an inch of rough cinder ashes all over the bed, without burying more of the plants than you can avoid,—charcoal dust for this purpose would answer better,—then stick a few dead sprays without leaves round the bed, and amongst the plants. If any thing will save them, this treatment will. Pray let us hear in the spring how you succeeded.

Wintering the Arum and Agapanthus (*I. B. & C. B.*).—In your parlour, where a fire is kept, this is perfectly easy; and they must be watered regularly in such a comfortable place; turn them out in the sun on mild days.

Fuchsia Corymbiflora (*Ibid*).—Cut down the green wood to where it is hard and brown, and winter it in a cellar or any outhouse where the frost does not reach it. If you wrap a hayband all round it, that will secure it so far.

Cacti (*Ibid*).—These do better in good windows in winter than any where else. Keep them dry till the turn of the season.

Myrtle (*J. L. B.*).—We do not clearly comprehend the condition of your myrtle, which you say would be very handsome, did "its leaves, which are not the very broadest, not continue to look *dark and dry*." We consider your tub (18 inches in diameter,) quite large enough, and that, from being shifted into it last year, it would be more likely to flower next season, if undisturbed. Pruning of the roots would only be useful if they were in bad order, or the plant sickly; in which case you might find a smaller tub, instead of a larger one, advisable. Did you soak the ball of the plant well before shifting it? If the plant is in high health but has not flowered, instead of cutting the roots, to cause it to flower, we would prefer placing it in the full sun, so as to harden the wood thoroughly, and try it another season; as a large myrtle in a tub, and a fruit tree in the garden are not in an analagous condition. The narrow-leaved varieties generally flower in the autumn, but seldom so freely or so beautifully as the broad-leaved kinds.

Camellia (*A. B.*).—The leaves of your camellias *curl* though placed in the most shady part of the greenhouse. Supplied with abundance of air, and watered two or three times a week, if healthy, they will not require shade now; unless the pots are very full of roots, and the buds swelling very fast, you give them *water* often enough. We think you must look to the unsatisfactory state of the roots, and the state of the drainage, for the evil of which you complain. If so, transfer the plants, even now, to fresh pots well drained, and without injuring a fibre, remove the sour clogged soil, and replace with sandy loam and peat.

Chrysanthemum Cuttings (*W. H. C.*).—Making cuttings, three weeks before the 9th of October, is too late for obtaining good blooming plants of chrysanthemums. The check given is apt to render the flower buds abortive. Had you succeeded by great care in preventing evaporation, you would have had after all only *Lilliputians* for your labour—though some people like them all the better on that account. The cuttings you made on the 6th inst., will be apt to fail from the same cause. In both cases you would have succeeded better by layering the points of the shoots in small pots, and severing from the parent plant when well-rooted. We are afraid we cannot get you out of your "*fix*," as the plants first struck, and showing no signs of bloom, will not be of any service to you this season; but as you seem to have plenty of plants growing out of doors, and to wish to have the flowers late and fine, we would recommend you to take up some of the plants carefully, saving all the fibres, and getting a good ball, and then plant them in light soil under glass, in a pit, &c., water them well, shade and syringe the leaves frequently, and they will not greatly feel the removal. Some of the best might be potted, and treated in the same manner; and though the the lower leaves would drop, the plants might yet do for standing by-and-by at the back of a greenhouse, where only the heads of bloom would be seen. Next year take off some cuttings in May, or make layers in August.

Many Questions (*A Lady Subscriber from the beginning*).—1. We would not advise you to sow your *West India seeds* until February or March, and then take the aid of a hotbed, but do not be sanguine as to the quality of the plants you may obtain, nor yet of your ability to preserve them in your greenhouse the following winter. 2. Your *wax-plant*. we presume to be the *Hoya carnosa*, a beautiful thing, a native of Asia, named in honour of Thomas Hoy, who was gardener to the duke of Northumberland. It requires a warm greenhouse to keep it in good health. 3. Get a stove, by all means, for your *damp greenhouse*, if you have no means of heating it already, or which cannot be made effectual. Your grapes should have been ripe by this time. Their falling in such large pieces may be more owing to damp rotting the footstalks, than to any thing of the mildew disease. Do not shut your doors and windows, as you have been advised, but open them and get on a brisk fire, and that will dry the house, and promote the circulation of air. See what has been said by Mr. Fisher and others lately, on vines. 4. It is not uncommon for the *Pyrus Japonica* to flower in the autumn. 5. *Violets* flowering now will bloom on in the spring, but, perhaps, not quite so abundantly. 6. The mildness of the climate in Cornwall, causes flowers to bloom earlier, than in the northern and inland counties. 7. When *balsams* are wanted early, it is usual to sow them in a hotbed. When that is not the object, they will come very well if sown in a greenhouse or even outside a window-sill. They may be sown out of doors in May or June. Either your seed or your sowing must have been at fault.

Wintering Lantana crocea (*Subscriber*).—This requires the warmest end of a greenhouse to winter in, and to be kept almost dry from November to March; this will cause it to cast its leaves. As soon in the spring as its buds appear to swell prune it down close like a pelargonium.

Oleander and Plumbago Larpentæ (*Ibid*).—These must not be kept quite dry but nearly so all the winter.

Martynia fragrans (*Ibid*).—This is a weedy looking plant with very handsome large purplish flowers, well worth growing in a warm border. The seeds should be sown in February, in strong bottom heat, in a cucumber bed. They are often very difficult to force into vegetation.

Pumpkin Seed (*J. M. Lee*).—We have not any at present. Your other questions we will answer next week.

Storing Apples (X. X.).—Dried moss is better than either hay or sand for putting between layers of apples; hay gives them an unpleasant taste, and sand so excludes the air that it prevents that proper fermentation going on upon which their good flavour depends.

Heracleum giganteum (*An Artist*).—The nurserymen advertizing it are respectable men, and the plant is very large; others may think it handsomer than we do.

Flower Pots (*Dianthus*).—We will see what we can do upon this subject. You are quite right in condemning the uncertain size meant by different writers when they mention 48s, &c.

Enormous Cabbage (*G. Taft*).—You say you have "this year grown an Early York Cabbage that weighed 25lbs." We do not doubt this weight, but we do not think it was the variety you name; of the Drum-head variety they have been grown much larger. Mr. Thoms, of the New Inn, Saltash, cut six, which weighed together 337lbs. The heaviest was 61lbs.

CALENDAR FOR NOVEMBER.

GREENHOUSE.

Air, admit rather freely in mild weather. **Bulbs**, such as hyacinths, tulips, narcissus, &c., pot for spring flowering. **Calceolarias**, keep growing slowly, in an airy moist atmosphere; seedlings, pot off, and prick into pans. **Camellias**, finish setting in, and the late ones may have their buds thinned if necessary. **Cinerarias**, encourage the forwardest to grow in a moist, gentle heat; keep these for spring and summer, just moving. **Climbers**, however beautiful, cut back to give light to the other plants. **Chrysanthemums**, remove incipient shoots from the axils of the leaves, on the main shoots; thin the buds where too thick; encourage with manure water; and if not all in doors, have protection ready. **Damp Stagnant Air** avoid. **Fires**, light in frosty and foggy weather. **Furnaces and Flues** clean out previously. **Heaths** and **Epacrises**, keep in the airiest part. **Geraniums or Pelargoniums**, encourage the old plants with a good position. Nip any luxuriant shoot, so as to equalize the strength; keep fresh potted ones just moving. **Plants** keep clear from dirt and insects, by washing and fumigation. **Temperature**, keep from 40° to 45° at night. **Water** every thing very moderately, unless plants swelling their flower buds: for these use water warmer than the air of the house. **Clean** pots, paths, stages; tie, train, and fresh label in bad weather.

R. Fish.

FLOWER GARDEN.

Anemones, plant for earliest bloom. **Auriculas** and **Polyanthuses**, put under shelter (see October). **Bulbous Roots**, finish planting in dry weather; pot for latest forcing, and for plunging in flower beds. &c. **Carnation** layers, finish planting and potting; secure the pot one's from rains. **Climbers** of all sorts, plant, prune, and train. **Compost**, prepare and turn in dry weather. **Dahlias**, cut down after frost, and let the roots remain as long as it is safe; when taken up dry them in open sheds. &c., before storing, where frost and damp cannot reach them. **Dress** the beds and borders, and put mark sticks to bulbs and other roots, to guide you when digging. **Edgings**, plant. **Evergreens**, finish planting, b. **Fibrous-rooted Plants**, finish dividing and planting, b. **Fork** over borders, &c. **Grass**, cut very close the last time; keep clear of leaves; and roll. **Gravel**, weed and roll. **Hedges**, plant, clip, and clear at bottom. **Hoe** and rake shrubberies, and bury the leaves, &c., between the plants. **Layering**, perform generally. **Leaves**, gather for compost, &c. **Marvel of Peru**, take up and store like dahlias. **Mulch** round trees and shrubs lately planted. **Plant** perennials and biennials (see October). **Planting**, perform generally. **Potted Plants**, for forcing, plunge in the earth of a well-sheltered border facing the sun. **Prune** shrubs and trees generally. **Ranunculuses**, plant for earliest bloom. Seedlings of them, in boxes, &c., remove to a warm situation. **Shrubs** of all kinds plant, stake, and mulch. **Suckers**, from roses and other shrubs, separate and plant. **Tigridias**, save from frost as long as possible; should not be dried till January or February. **Tulips**, finish planting, b.

D. Beaton.

PLANT STOVE AND FORCING DEPARTMENT.

Air, admit as freely as the season allows. **Bark-beds**, renew or turn over, to keep up the required bottom heat. **Dress** the borders by forking and raking, to keep a dry porous surface. **Fire Heat**, by whatever means it may be distributed, must now be daily employed, to keep the temperature from 55° to 60°. **Leaves**, keep clean with sponge, &c., and remove decayed ones. **Pines** require a dry temperature of 60° to 65°. **Protect** outside borders, in which forcing trees are planted, from rains and frost. **Peach**, prune; wash with diluted ammonia-water from the gas-works before training. **Potted** flowering bulbs and other plants introduce. **Tobacco fumigation**, employ, if insects appear. **Vines**, strip the old bark off, and clean, as the peach, before commencing to force; begin with a day temperature of 50°. **Water** (tepid), apply, with the syringe on clear days.

D. Beaton.

ORCHARD.

Planting of all kinds carry out. **Stake** newly planted trees for fear of wind. **Mulch** newly planted trees as soon as planted. **Pruning**, commence. **Currants** and **Gooseberries**, prune, b. **Apples**, prune, m. **Plums** and **Cherries**, prune, e. **Pears**, prune, e. **Large orchard trees**, prune, e. **Raspberries**, prune and dress, e. **Figs**, pull off all young fruit large as a horse-bean, b.; protect from frost, m. **Nectarines** and **Apricots**, clear away the remaining leaves from, m. **Nails** and screws, draw out superfluous or rotten ones from all wall trees, m. Pick and prepare ditto for renailing. **Suckers**, clear away, m. **Vines**, prune, m. **Espaliers**, prune, m. **Mulberries**, plant, b. **Medlars**, plant, b. **Raspberries**, plant, m. **Strawberries**, plant, b. **Stones** of fruits, sow, b. **Trench** or otherwise prepare ground for planting, b. **Walnuts**, plant, b. **Fork** out ground about fruit-trees, slightly b.

R. Errington.

KITCHEN GARDEN.

Artichokes, winter, dress. **Asparagus-beds**, dress; attend to that in forcing. **Beans**, plant, e. **Beet** (Red), dig up for storing; leave, or plant out for seed. **Cabbages**, plant; plant out for seed. **Cardoons**, earth up, b. **Carrots**, dig up and store, b.; leave or plant out for seed. **Cauliflowers**, prick out, b.; attend to under glasses, &c. **Celery**, earth up. **Coleworts**, plant. **Composts**, prepare. **Cucumbers**, attend to in forcing. **Drain** vacant ground. **Dung**, prepare for hotbeds. **Earthing-up**, attend to. **Endive**, blanch, &c. **Garlic**, plant, b. **Herbary**, clean, &c. **Horse-radish**, dig up and store. **Hotbeds**, make for salading, &c. **Jerusalem Artichokes**, dig up and store. **Leaves**, &c., continually clear away. **Lettuces**, plant in frames; attend to those advancing. **Mint**, plant; force in hotbed. **Mushroom-beds**, make; attend to those in production. **Onions**, in store, look over; (winter standing), thin; plant for seed, b.; (Potato), plant. **Parsley**, cut down, b.; plant some in a frame for use in snowy weather. **Parsnips**, dig up and store, b.; leave or plant out for seed. **Peas**, sow, b. **Potatoes**, dig up, b. **Radishes**, sow, in hotbed. **Salsafy**, dig up and store. **Savoys**, plant for seed, b. **Scorzonera**, dig up and store. **Seeds**, dress and store. **Shallots**, plant, b. **Small Salading**, sow; sow in hotbed. **Spinach**, thin, &c. **Thinning**, attend to. **Trench**, ridge, &c., vacant ground. **Weeds**, destroy continually.

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WEEKLY CALENDAR.

M D	W D	NOVEMBER 1—7, 1849.	Weather near London in 1848.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
1	Th	All Saints. Hazel leafless.	T. 49—32. E. Rain.	55 a. 6	32 a. 4	53 a. 37	16	16 16	305
2	F	All Souls. Mich. Term b. Botan. Soc.	T. 54—33. N.W. Fine.	58	30	6 17	17	16 16	306
3	S	Lilac leafless.	T. 55—32. S.W. Fine.	59	28	7 5	18	16 17	307
4	Sun	22 S. aft. Trin. Gooseberry leafless.	T. 39—23. N. Rain.	VII	26	8 2	19	16 16	308
5	M	Gunpowd. Plot, 1605. Skylark's song	T. 47—39. S.W. Fine.	3	25	9 7	20	16 14	309
6	Tu	Linn. & Hort. Soc. Meet. [ceases.	T. 50—38. W. Fine.	5	23	10 16	21	16 12	310
7	W	Hooded Crow arrives.	T. 46—22. N.W. Fine.	6	21	11 28	☾	16 8	311

All Saints is a festival still commemorated by our Church, for the purpose of specially asking power from above to enable us to imitate them "in all virtuous and godly living," but it is more noted on account of the superstitious customs still observed on the night previously. This, or "All-hallow Even," is known in every rural district, and associated in each with some ghostly legend and love charm. This is especially the case in Scotland, and there, in almost each village,

"Some merry, friendly, countra folks,
Together do convene,
To burn their nits, an' pou their stocks,
An' haud their Hallowe'en."

Nuts and apples form a portion of each entertainment at these meetings, and hence it has been surmised that some festival of Pomona, now that summer stores are opened for approaching winter, was celebrated on this day in the Roman period of our history, and of which these eatings of fruit are a relique. In many parts of Scotland fires on some rising ground were now kindled, and a solemnity kept as a thanksgiving for the in-gathering of the crops.

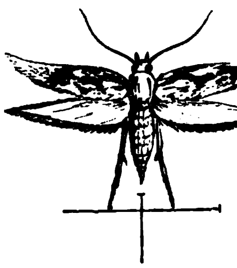
All Souls is still celebrated by Roman Catholics as a day of supplication for the release of departed spirits out of the purgatory which they believe to exist. Many customs are yet observed in secluded parts of England, that are now unmeaning fragments of former solemnities. Thus, a peculiar cake, always three-cornered, and called *Somas* (*Soul-mass*) *cake*, was an invariable part of the eatables on this festival, and still in rural districts girls go to the farm-houses, collecting contributions, and singing verses, among which is this doggerel:—

"Soul! Soul! for a soul cake;
Pray you, good mistress, a soul cake."

Metrorology of the Week.—The average highest temperature of these days for the last twenty-two years is 54.6°, and the average lowest temperature 38.1°. The highest point the thermometer reached on any one of the days was on the 6th of November, 1834, when it rose to 63°. The greatest cold during the same period was on the 4th in 1845, when it was as low as 22°. There were in this period of the 22 years, 78 days on which rain fell, and 76 were fine. The greatest quantity of rain which fell on any one day (we speak of the neighbourhood of London) was 1.02 inch.

Natural Phenomena Indicative of Weather.—When *cats* wash their faces, are sleepy and dull, the approach of rain is intimated. Yet other observers say that this animal foretels rain when irritable, restless, and playful. A cat turning her back to the fire is also said to intimate the coming of severe weather, but we rather think it tells that such weather has arrived, for in frosty dry air the fire scorches more readily, and inconveniences the cat whose face is towards it. *Cattle* looking towards the sky, and expanding their nostrils as if inhaling some smell, intimates the approach of much rain. If they gambol about their pasture, it generally precedes a change of weather.

Insects.—Even this gloomy month has its peculiar insect—the November Dagger moth. It is the *Diurnea Novembris* of some entomologists, and the *Tinea Novembris* of others. The male, we believe, has not been described, but the female, magnified, is represented in our annexed woodcut. Her natural size, both of body and expanded wings, is shewn by the cross lines beneath. The fore-wings are pale brown, with white patches and undulating lines, and with scales scattered over their surface. The edges of the wings are black. This insect is found on the trunks of lime-trees near London, in the cathedral Close at Winchester, and elsewhere. The caterpillar feeds upon the leaves of the lime, but we never heard of its appearing in numbers sufficiently numerous to be markedly injurious.



RANGE OF BAROMETER—RAIN IN INCHES.

Nov.		1841.	1842.	1843.	1844.	1845.	1946.	1847.	1848.
1	B.	30.063 29.901	30.216 30.114	29.800 29.670	29.513 29.248	30.177 30.132	30.043 29.959	30.286 30.024	29.602 29.505
	R.	0.01	—	—	0.38	—	—	0.01	0.03
2	B.	30.226 30.187	30.126 30.084	29.820 29.790	29.245 29.119	30.273 30.186	29.934 29.911	30.343 30.305	29.765 29.697
	R.	—	—	0.09	0.49	—	—	0.02	—
3	B.	30.369 30.309	29.983 29.934	29.660 29.652	29.384 29.318	30.317 30.288	30.050 29.991	30.325 30.270	29.614 29.446
	R.	—	0.03	—	—	—	—	0.01	—
4	B.	30.372 30.340	30.169 30.073	29.783 29.691	29.371 29.215	30.268 29.965	30.096 30.053	30.216 30.138	29.737 29.496
	R.	—	0.01	—	—	—	0.02	—	—
5	B.	30.379 30.841	30.177 30.104	29.992 29.931	29.215 29.175	29.835 29.722	30.157 30.131	30.010 29.941	29.808 29.589
	R.	—	0.01	0.02	0.03	—	0.01	—	0.01
6	B.	30.391 30.366	30.148 30.122	29.965 29.927	29.276 29.252	29.634 29.313	30.149 30.146	30.021 29.904	29.645 29.538
	R.	—	0.01	0.10	—	0.05	—	0.24	—
7	B.	30.391 30.351	30.131 30.099	29.749 29.662	29.377 29.364	29.916 29.468	30.269 30.222	29.988 29.796	29.879 29.518
	R.	—	0.01	0.17	0.06	0.06	—	—	—

Within the last few weeks we have seen it recommended, in a gardening periodical of the first authority, to take up dahlia tubers as soon as the stems have been overtaken by the frost; and the reason assigned for doing so is, that if the tubers are left after the tops have been cut down, the buds for the next season's growth are apt to push out into shoots! Practice, however, sustained by science also, demonstrates that this is a great error, as it is well known, to those who begin early in the winter to force the roots of any new or very scarce varieties, how reluctantly they will "break," or produce buds. Moreover, many cottagers and amateurs leave their dahlias in the ground all the winter without ever experiencing this "break" after the tops are removed. We know that Mr. Turner, the celebrated florist at Slough, who generally runs away with the first prizes wherever he competes, recommends, like Mr. Beaton, that the tubers should remain in the ground a considerable time after the tops are cut off, alleging as his reason that the longer they are in the ground the shorter their winter is—so to speak. Our own opinion coincides with that expressed by Mr. Beaton; and the rule holds good as in all autumnal pruning. The buds for next season get more charged with the juices or sap collected by the roots, and are, therefore, more able to make a vigorous start in the spring; and, in the case of the dahlia buds, we make no doubt but, in addition to this vigour in the buds, it also assists materially to preserve the roots or tubers through a long winter, because they are more matured. All this is strictly in accordance with the best ascertained facts in vegetable physiology. We recommend to our readers, therefore, the advice of our coadjutor instead of that offered by our contemporary.

As water is essential to germination, and only a certain quantity is required for its healthy progress, so is it by no means a matter of indifference what matter it holds in solution. Until germination has commenced, no liquid but water at common temperatures will pass through the integuments of a seed. So soon as germination has commenced, this power to exclude foriegn fluids ceases, but the organs starting into activity, the radicle and the plumule, or young root and stem, are so delicate, that the weakest saline solutions are too acrid and offensive for them. So utterly incapable are the infant roots of imbibing such solutions, that at first they are absolutely dependent themselves, for their very existence, upon the seed-leaves; and if these be removed, the plant either makes no further advance, or altogether perishes. Many years since we tried various liquids, to facilitate the germination of seeds; but, with the exception of those which promoted the decomposition of water, and the consequent more abundant evolution of oxygen, we found none of any efficiency. As to keeping the seeds in saline solutions until they germinated, we never, certainly, carried our experiments so far as that; and shall be most astonished if any other effect than injury or death to the plant is the consequence. Such has been the result in the Horticultural Society's gardens, where the seeds of *Lupinus Hartwegii* were made to germinate in a weak solution of phosphate of ammonia.

No liquid in which water does not preponderate will enable a seed moistened with it to germinate; for we have treated broad beans, kidney beans, and peas with pure alcohol (spirit of wine), olive oil, alcohol and water, in equal proportions by measure, and with a solution of carbonate of ammonia, but in no instance did they germinate.

It may be noted as a warning to those who employ steeps for seed, with the hope of promoting the vigour of the future plant, that they must keep the seed in those steeps a very few hours. In forty-eight hours, if the temperature be 60° or more, putrefaction commences, and germination is weakened, or entirely destroyed.

M. Vogel, of Munich, has published an extended course of experiments upon this subject; and they fully confirm our opinion, that salts, harmless when the plant is of robust and advanced growth, are fatal to it at the time of germination; for he found that seeds germinate without injury in carbonate of lime (chalk), carbonate of strontian, litharge, red oxide of lead, phosphate of lead, black oxide of manganese, calomel, and cinnabar. That they germinate feebly in carbonate of magnesia, copper filings, sulphuret of antimony, red oxide of mercury, and aqueous solution of iodine. Lastly, that they refused to germinate at all in carbonate of barytes, hydrate of barytes, iodine pulverised and moistened, kermes mineral, golden sulphur of antimony, oxide of bismuth, arseniate of lead, and green oxide of chromium. These are facts which explain the result of practice, that saline manures are generally injurious if applied with the seed, though they may be beneficial if applied long before the seed time, or, subsequently, when the plants are of advanced growth.

Nothing is so injurious to a germinating seed as great vicissitudes of temperature and moisture, or a lengthened exposure to excess of the latter; in either case the awakening life of the seed is frequently entirely extinguished. Nothing is more dreaded by the maltster than a sudden check to his germinating barley; and, as a chill to the incubating egg effectually prevents the formation of a chick, so does a sudden degree of cold often destroy the sprouting seed. To preserve the seeds of our winter crops from such vicissitudes, they may be sown beneficially upon, and covered with a thin stratum of coal-ashes—these are an excellent drainage, as well as a good non-conductor of heat.

It affords a warning, too, to those who have to pack seeds for lengthened transport in tropical regions. They cannot be kept too dry—for heat alone will have no influence over their germination; and they should, therefore, be put into small, open, canvass-bags, and suspended from the beams of the upper cabins, where a current of air will keep the seeds as free as possible from damp. Close packing in paper, in boxes, and in tin cases, stowed away in the hot hold of a ship, causes such a heating of the seeds, such an extrication of moisture from them, as is just enough to commence germination; and which, only carried through its first stage, ceases, and then decomposition ensues, which effectually destroys the arousing vitality.

Water being such an essential application to the seed as well as to the growing plant, it may be also observed that the source from whence it comes is by no means immaterial. The best for the gardener's purpose is rain water, preserved in tanks sunk in the earth, and rendered tight by puddling or bricks, and Parker's cement. To keep these replenished, gutters should run round the eaves of every structure in the garden, and communicate with these tanks. Every 100 cubic inches of rain water contains more than four cubic inches of air, of which more than half are carbonic acid gas, and the remainder nitrogen and oxygen, in the proportion of 62 of the former to 38 of the last named. Liebig, from actual experiment on a large scale, states that both rain and snow contain ammonia; and if there be only one-fourth of a grain in each pint of water, the annual deposition from the atmosphere would be more than sufficient, on half an acre of ground, to give all the nitrogen contained in the vegetable albumen of 150 cwt. of beet root. Rain water also contains a peculiar organic substance, analogous to the extractive matter and gluten of plants, though differing from them chemically. To this substance Dr. Daubeny has given the name of *Pyrrhine*. Traces of salts and oxides have also been found in rain water; but compared with all other naturally produced, it is so pure, and so abounds with the gases beneficial to plants, that none other can equal it for their service. That obtained from ponds or springs invariably contains matters offensive or deleterious to plants. Those known as hard water, containing in excess salts of lime or magnesia, are invariably prejudicial, and pond water is scarcely less so. If it be stagnant and loaded with vegetable extract, it is even worse than hard spring water. These last named, if obliged to be employed to tender plants, should have a pint of the ammoniacal water of the gas-works mixed thoroughly with every 60 allons, an hour or two before they are used.

THE FRUIT-GARDEN.

The Pine-apple.—No doubt some of our amateur friends attempt to cultivate this king of fruits, for its culture has been so much simplified during the last seven years that those who can indulge in the luxury of a greenhouse can add that of a pine-pit without any fear of increasing the labours of their establishment in any sensible degree. In former days the culture of pines was considered a mighty affair; so much shifting, tan-stirring, watering, leaf-stripping, root-cutting, &c., &c., that a man who could go through all these processes, and produce what would now be considered half-starved fruit, was looked up to with a kind of veneration.

It has been made perfectly manifest of late years that our worthy sires were spending a great part of their labours in vain, and that had they began by studying the habits of the pine in its native climes, instead of carrying out their plans by the delusive light of a few rules, which had attained the character of binding prescriptions, a reform in the culture of this fruit would have occurred at a much earlier period, and a vast amount of misspent labour spared. As in all other departments, there have been conflicting systems or modes of pine-culture. This is quite right, for, by such means, the public is roused from a lethargy which might otherwise induce it to be too content with things as they are. This intermediate state of things leads necessarily to a reconsideration of the whole question; principles are examined most keenly, and such must finally result in a settlement of the question on the most sound basis; simplification, and, by consequence, economy, following closely in the wake. We cannot afford space to compare the principal existing systems; suffice it, for the present, just to glance at them. Three stand prominent; indeed, all others may be resolved into them, viz., the old pot-culture, the Hamiltonian, and the Meudon. In handling this subject with reference to gardening on a small scale, we feel induced to confine ourselves to the *Hamiltonian*.

Whatever may be the merits of the Meudon plan, it is tolerably manifest that the Hamiltonian is the most economical, and this is sufficient to attract the notice of the small cultivator, for, in the course of our labours for The Cottage Gardener, we make it our constant aim so to economise and simplify matters (hitherto treated in too mysterious a way), as to bring all these luxuries within the reach of thousands, so that every one who can afford to keep a gardener constantly may have good pines, grapes, and all the *et-ceteras* which constitute a first-rate dessert.

Mr. Hamilton was the first to render manifest that greatest of absurdities the disrooting system; a mode which had, doubtless, crept into vogue through bad systems of potting, together with a total ignorance of the mechanical texture of soils. In former days most of the stock of pines not in a fruiting state were turned out of their pots in February, and the chief of their roots cut away; and nobody thought of assigning a reason, except, as was generally urged, the soil had become sodden. But why did they suffer the soil to become sodden? By this foolish procedure some three months at least were totally lost, and besides this the plants received a severe check, which was found to be prejudicial ultimately to the fruit's size.

Again, no person previously to Mr. Hamilton showed the exceedingly great importance of preserving every healthy leaf entire and unmutilated; and that such being the case, any mode of culture which involved a frequent shifting or removal of the plants must, of course, be radically wrong; inasmuch as such processes cannot be carried out without much damage to the leaves. Bottom heat, too, Mr. Hamilton showed had been used by far too freely, and that such unwarrantable amounts had been drawn into practice by the various checks the pine had been subjected to, by which the vital actions had become so much checked that unnecessary stimuli had to be resorted to. Hence, what some other cultivators were trying to accomplish by high stimulants, he easily accomplished by means of a strictly conservative system of root management; by which it became manifest that if the pine could but get hold of any absorbent material, and keep hold, unmolested, a much more moderate amount of bottom heat would suffice, as also much less trouble in watering.

Thus far, then, Mr. Hamilton's main features of culture; of which having been repeatedly an eye-witness, and of his great success, we bear testimony with a high degree of pleasure. His little book on pines should be closely examined by all who would appreciate his system; and had this treatise been a little more perspicuous in its arrangement, and had a little more taste been exercised in its phraseology, we have no doubt its circulation would have been very considerable; but these trifles should by no means prejudice the system.

We may now turn to the objects of the amateur in pine culture, and here we would call on every one about to enter the lists, to consider well beforehand the object in view; because, to grow pines for exhibition, and for mere domestic consumption, are two very different things, as to the economical bearing of the matter. Very few families require a pine for the dessert to be more than three pounds in weight, and this at five shillings the pound is a somewhat costly affair.

Now, if one of those thumping exhibition fruits, of some eight or ten pounds weight, presents itself on company days, what is to be done? A pine worth a couple of sovereigns has to be sacrificed, when a ten shilling one would amply suffice. This, then, we would urge is a great sacrifice, for an object of a very uncertain character. We submit that a plant on the Hamiltonian system, with two or three fruits upon it, each weighing as much as three pounds, is by far better adapted for general purposes than a single plant with one fruit only equal in weight to the whole three Hamiltonians. We very much fear that our great exhibitions have driven many of these things beyond the bounds of convenience and economy. We are not quite assured, nevertheless, that the single plant system produces much larger fruit than the Hamiltonians: we have heard Mr. Hamilton repeatedly affirm that he found those plants with three suckers, all in fruit at once, but in different stages (it may be), produce each fruit just as large and as perfect as though only one had been produced. This may seem, at first sight, a paradox; but when it is considered that each sucker has its own individual trunk, and system of leaves complete, the marvel will cease; and it will appear tolerably plain, as Mr. Hamilton always asserted, that the pine derives a great portion of its food from the atmosphere; and that the great secret of culture is rapid growth without a check, by which means the greatest amount of the most efficient foliage is produced in the least possible time; and we entertain little doubt, from the known habits of the pine in its native habitats, that leaves developed with rapidity and freedom possess much higher elaborating powers than those stunted plants. We do think, therefore, that the amateur who desires to have a well-swelled but moderate-sized pine, and that frequently, will do well to adopt the Hamiltonian system without hesitation. In doing so, he can, as Mr. Hamilton does, grow his *cucumbers* in the same house all the year round: indeed, with a house properly planned, a tank chamber beneath the bed, and abundant provision for heat, and, above all, atmospheric moisture, he need never plant a cucumber elsewhere: such a house would supply the family winter and summer, and herein is no small economy and simplification of business. It should be borne in mind also by the amateur, that his surplus pines, provided he can manage to have them whilst Parliament is sitting, especially during April and May, will realise very high prices, which will go far towards paying the expenses of their culture—such pines generally fetching six or seven shillings per pound. The London commercial gardener grows the Queen pine principally for such purposes, and they are, as it were, forced, or the early pines of the season. We have long thought, however, that the culture of the "Black Jamaica," or, as some will persist in calling it, the "Montserrat" (although the real Montserrat is quite another thing and much inferior), would be far more eligible done on the retarding instead of the hurrying principle. This pine has the excellent property of carrying high flavour at all seasons; besides which it will bear retarding, perhaps, longer than any other of the family. Thus the Jamaica "rising" or "showing" fruit in a good light house, during the month of August, would be full-swelled by the end of October; and, with a moderate winter temperature, would remain sound and uncoloured until the following March, when it would begin to turn colour. Those ripe at that period might be retarded for two or three weeks in order to realise the high prices before alluded to.

WINTER MANAGEMENT.—We may, in concluding these observations, be permitted to offer a little practical advice to those who already grow pines—advice bearing on a winter's course of management. It will now be absolutely necessary to renew those bottom heats of fermenting materials which have passed on for many weeks without such renewal. No bottom heat, winter or summer, should ever be permitted to descend below 70°. If we must endeavour to give an idea of the bottom-heats adapted to the seasons, we would say, let the summer pitch range from 75° to 85°, and the winter's from 70° to 75°. Of course, the temperatures of the intermediate quarters should be intermediate also. There are those who talk of "*brisk*" bottom-heat, but we strongly advise our amateur friends to have nothing to do with such dangerous procedures; we would say, remember that capital pines have been grown in bottom-heats not exceeding 75°, so that this "briskness" is, after all, not the chief agent in good pine-culture.

Those who can avail themselves of tree leaves, fresh from the trees, cannot do better than renew their beds with them; and if there is no time for them to ferment as they ought to do, they will do well to mix nearly one half of the freshest leaves of the former autumn with the new ones; this will promote a wholesome moisture in the atmosphere, and enable the operator to tread them firm in the act of filling the pits, which treading is a very necessary proceeding.

In newly-dressed beds or pits for the winter, do not plunge the pots their full depth by any means, only one half at first; in a fortnight's time, the true character of the fermenting mass may be ascertained, and, if "below par," why it is easy to thrust a little fresh tan between the pots. Pines swelling, or in course of ripening, should be allowed 5° more of both bottom and atmospheric heat than mere succession pines; the amount of heat necessary to do justice to the ripening process would "draw" and weaken the succession plants.

We come now to atmospheric warmth, and this will, of necessity, be far more fluctuating than the ground heat; indeed, nature teaches us it should be so. Such vicissitudes, stopping short of actual abuse, are of more importance in our comparatively dark northern climes, in the culture of tropical fruits, than many persons imagine. They serve to keep the tissue, or fabric, of the plant solidified; this would otherwise become somewhat flaccid, or, what gardeners term, "drawn."

We must, however, endeavour to convey an idea to the uninitiated. From 70° to 90° in summer, and from 55° to 65° in winter, may be stated as about the mark. This is latitude enough for anything, and the amateur may follow this, observing that the depression of the thermometer ought to bear a strict relation to the amount of light, whether night or day, for this is the way nature, our great instructress, proceeds in the affair. Of course, as with the bottom-heat, so also here; the intermediate seasons will be of intermediate temperature. A reasonable amount of atmospheric moisture must be provided by moistening the walls, floors, &c., if no special provision exists; the syringe must be used with much caution from now until next February, taking care that it never be applied whilst any water remains in the sockets or hearts of the pines. Another sound piece of advice is—use fire-heat cautiously, and as a necessary evil, if we may so term it. R. ERRINGTON.

THE FLOWER-GARDEN.

Standard Evergreen and other Shrubs.—In continuation of the subject about making standards out of old laurel bushes and other shrubs, I see I did not lay stress enough on the importance of having the old bushes cut before Christmas, and rather in November, if convenient. The second season after I began these experiments I was sadly put out, and lost a whole season, as well as a dozen fine Portugal laurels, by cutting them down to the ground in April, which is a good time for general pruning them, and, as I then thought, a good time to cut them close to the ground also; but it is not so. It is true the stools will shoot out profusely enough, but not so vigorously as to form clean stems the first year, without a constant pruning-in of the side branches through the growing season, and even then they would look knotty for a long time. Whereas, by cutting them late in the autumn, strong succulent shoots will rise as straight as ramrods, and as smooth as a gun-barrel. I was also thwarted about the time of ringing the bottoms, to facilitate the emission of roots. Ringing must be done at, or a little after, midsummer; for, if you ring them any time in April or May, and cover the cut parts, a communication is soon formed by a new layer of bark. It was on a large stool of the *lilac*, with thirteen strong suckers, and another of the common *privet*, with nine suckers, that I first discovered that spring ringing has little influence in arresting the circulation, and I was rather surprised at the fact; but so it was, and, as the whole went through my own hands, I could not be mistaken. On referring to such authorities as I then could lay my hands on, I discovered nothing relating to this early ringing, and as to the theory of the practice I need not speculate now.

Standard lilacs, including the Persian lilac, are very handsome when you can have them without the wilderness of suckers which they are so prone to send forth, and they are the easiest of all to make, except the snowball bearing *Guelder rose*, which will make the most handsome of standards imaginable, and, in good soil, an old plant cut down will throw up suckers seven or eight feet high, with hardly a side branch. This and the common lilac often throw up suckers, without the old plants being cut down, sufficiently long to make these standards, but unless they are well disbudded, and rings of bark cut out as above, you can never divest them of their natural way of producing suckers. The common syringa *(Philadelphus coronarius,)* is another deciduous, rambling shrub, as prone to give forth suckers as the lilac, but, treated as standards, they make beautiful little trees, and the troublesome habit of producing a host of suckers is got rid of. They make elegant little trees, like standard roses, for forcing, in the spring. There are two others of this genus which ought to be in every shrubbery, whether as standards or huge bushes; their names are the Warted and the Broad-leaved Philadelphus. These three flower early in summer, and there is another species of them that does not flower till July, and on that account is valuable, besides that it is a very handsome shrub; the name is *Gordonianus*—after Mr. Gordon, one of the Horticultural Society's gardeners, who is the most knowing gardener we have among trees and shrubs. In their natural way of growing, these shrubs are little better than a raspberry bush; indeed they are more troublesome than ornamental that way, but train them into standards, and one could hardly believe how nice they look.

Amongst other things I had a handsome round-headed standard of the old-fashioned *Fly honeysuckle* in bloom last May, and two smart young gardeners mistook it for the new *Weigela rosea*, and wondered how it had grown so strong during the short time since its introduction. Now, of all the weedy things in the world, this honeysuckle is the queen or king, when allowed to stole and ramble about after its own fashion. Therefore, if handsome manageable plants can be formed out of such materials, surely it is better to have a good selection of them than to have one's grass-plots and shrubberies stuffed with laurels and half-a-dozen other common things.

The common *berberry* makes a handsome standard, but how seldom is it tried that way, being only allowed to make a thicket of scrambling suckers—choking up the shrubbery like other plants of the same habit. Yet when reared up on a clean straight stem, five or six feet high, it forms a very interesting little tree, and while in fruit particularly so. There is another form of it called the *Asiatic berberry*, which, if possible, is a still more interesting little tree, with bunches of purple berries in the autumn. The Horticultural Society of London have distributed this berberry industriously all over the country of late years, and they recommend it for underwood in plantations, to shelter and feed game, for which use it is very well adapted, and no poacher could force his way through a thicket of it, for it spreads from the roots as much as the common black-thorn. There is one more berberry called *Aristata*, a brittle-leaved berberry, which, I think, would answer well as a standard, though I have not seen it grown that way.

The old *Corchorus Japonicus*, with double yellow flowers, which may be seen in every old garden in the country, growing after the manner of the raspberry, would make a singularly beautiful standard if the stem did not rise above four or five feet high. The long slender branches first grow perpendicularly, and then bend over gracefully, like plumes of feathers, and, when in full blossom, the weight of the flowers weigh down the branches till their points nearly sweep the ground. There is a variety of this with single flowers, which was introduced about a dozen or fifteen years since. When De Candolle saw this single form of our plant, he at once perceived that it did not belong to the genus *Corchorus*, and he named it *Kerria*, after Mr. Ker, a botanist who collected plants for the Kew Gardens; the fashionable name, therefore, is *Kerria Japonica*.

The genus *Spiræa* furnishes a host of plants, which produce suckers in such numbers as to destroy each other. I never tried them, nor saw them tried by others, as low standards, but I am quite satisfied a great reformation could be made in their culture by getting rid of their suckers, and rearing them on single stems from two to five feet high, according to the growth. *Spiræa Lindleyana*, treated as a low standard, would form one of the handsomest plants that one could place out on the grass, and when not in flower might be mistaken for a new sumach tree. I am now rearing a batch of seedlings of it for this purpose; they were sent to Sir W. Middleton by Lord Hardinge from the north of India, along with many curious things from that quarter, including a peach tree with small narrow leaves, as much like those of a small willow as possible, and if it should turn out to be a good fruit, as I expect it will, it will be something for my friend, Mr. Errington, to talk about some day.

Speaking of Indian shrubs, where could you find a better subject for a handsome standard than the "Beautiful Leycesteria" of Dr. Wallich—a soft-wooded shrub, which caused a good deal of heart-burning in this country a few years since, having not proved what it was at first reported to be, and is already almost neglected. It is also one of the "ne'er-do-wells," if allowed its own way of growth, but elevate its handsome foliage, and its pendant clusters of flowers and fruit on a clean stem six feet high, and, my word for it, you will create a sensation in your neighbourhood. It has no English name, but commemorates that of William Leycester, formerly chief judge at the Bengal Presidency.

But enough; a book might be written on the subject, and not exhaust it. These examples are taken from the most common shrubbery plants—the most difficult subjects to deal with in any other way, and the least elegant in their modes of growth, when allowed to take their natural turn. Although I would strongly recommend this way of managing such plants, it is more for the purpose of getting rid of their propensity for throwing up a wilderness of suckers than for torturing their heads into globular forms, like those of standard roses. Indeed, I would rather let them take their natural way of growth, merely preventing any large limbs or shoots being formed to derange the balance of their growth; and this is easily effected by stopping over-luxuriant growths occasionally, and by pruning the shoots in winter according to their size and strength—that is, the very short branches to be only a little shortened—the middle-sized ones to have one-half or two-thirds of their length cut off, and the small spray either cut out entirely, or cut in to a few eyes, according to their position, and not allowing any to cross each other. This, of course, would be modified according to the way they produced their flowers after their head was properly set off. What would our gooseberry and currant bushes be if they were allowed their natural way of growth? Their suckers would spring up as profusely as those of the lilac, and their fruit would be comparatively useless. It is much the same with many of our ornamental shrubs; their flowers are in many cases only an apology for what they might be under a better system. We find no difficulty in forming our fruit bushes without suckers, and with clean straight stems, and we prune their heads in different ways accordingly as they best flower and fruit, and that is all that I claim for our ordinary shrubs, which, as at present seen, are living examples of our negligence and bad gardening. Standard bushes were made with great industry by our ancestors, and the thing is as old as the hills, but in those days they pruned and clipped them into all kinds of fantastic shapes, which is altogether foreign to our present taste. All that is original in this plan is the certain way of getting rid of their contending suckers and side branches at once and for ever from the collar of the plant upward to the head. Let the bole be of any length whatever, if it is prepared after the manner I described in my last letter. You may cut off the head ten years hence, and I shall engage for it that the whole stem will die back inch by inch, without the power of forming a single adventitious bud. Plants like the lilac, which are naturally stoloniferous, that is, having the power of growing shoots from the main roots, would, no doubt, produce suckers from these roots under such a severe trial, but certainly not one from any part of the stem itself. The thing is a natural impossibility, and yet, to this moment, it has escaped the observations of vegetable physiologists. Indeed, a ticklish question, which hinges on this very point, has been in agitation in all parts of Europe these fourteen years back, and notwithstanding all the natural philosophy that could be borne down on the subject, the solution is as much in the dark now as it was at the commencement. I allude to the origin of the, so called, purple laburnum, which is now, by common assent, referred to cross impregnation, but I am as satisfied as I am of my own existence that this tree has not been brought into existence by that means, but that the key to unravel the mystery is to be found in the true origin of buds, or rather in man's power to facilitate, or totally to prevent, the production of latent or adventitious buds.

D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

Calceolarias.—As I mentioned last week, the best place for growing all the tender large flowering herbaceous kinds during the winter is a dry pit, supplied with a hot-water pipe or fire-flue, or any other means by which a dry heat can be communicated at pleasure. As the calceolaria, however, dearly loves a moist atmosphere, this can be easily communicated, when much artificial heat is wanted in very cold weather, by setting pans of zinc bedded upon the pipes or flue, to be supplied with water, so that the more heat you use the greater will be the quantity of moisture evaporated. I have said "bedded," because without this a body of air will intervene between the bottom of the pan and the heating medium, and thus the water in the pan will be less heated, and consequently less evaporation will take place from it. In the case of the flue, this bedding may be done with mortar. In the case of the pipe, the bottom of the pan should be made concave, in a semicircular form, to clasp the pipe, and then let it be fixed on with red lead. We have many of such two feet in length. They answer the same purpose as having troughs cast upon the pipes, and can be procured at a tithe of the cost. When no moisture is wanted, they are allowed to get dry. Galvanised iron would, very likely, be better than zinc.

The next best place for calceolarias is the warm end of a greenhouse, where less air may be given them than is communicated to the general residents; and here in bright weather, or when fires are wanted during dull and frosty days, a few pans of water placed along with them on the shelves, and sprinkling the shelves now and then with the syringe, will keep the air moist, and suit them better than much root watering.

The worst place of all for them is a cold pit or frame without any means of artificial heat, more especially if sunk below the ground level, as in continued foggy weather, or when so frosty that you cannot uncover for several days, there is great risk of your plants rotting off by the surface of the pots. In such a winter as we had last year there would be little difficulty in the matter. In preserving old plants in such places, the best plan is to pick off as much of the old soil as possible, especially near the collar of the plant; place there a small cone round it of peat-earth, charcoal-dust, and silver sand; elevate the plant upon boards near the glass; give little or no water until spring, unless the winter should be sunny and warm; admit air freely when the external temperature is from 35° to 40°, but more sparingly in frosty weather, even when the sun shines, taking the precaution to shut in a fair portion of sun-acquired heat in preference to using thick coverings, and then, when potting in the spring, advantage may be taken of the fine healthy roots protruding through the cone of fresh earth put round the stem of the plant, by sinking it deeper in the new pot. We have thus saved plants in very unfavourable circumstances, but with more trouble than in the case of plants raised from cuttings in August, as they possessed more constitutional vigour, and, for their size, were better supplied with vigorous roots than the old plants, while being in small pots was another preservative against damping To guard against this evil still more, the plants were more elevated in the pots than those which were to have the advantage of artificial heat; but, though they grew little during the winter, they made rapid progress after being shifted in the month of March.

Seedlings will also be easier kept in cold pits during winter than the old plants, but not so easily as plants from cuttings, as the latter possess more firmness and concentrated matter in their stems. To be kept in such circumstances they should be nice stubby plants, raised from a sowing made in the last days of July, or the beginning of August, and during the winter should also stand rather high in their pots. A great number of them can be grown in a little space, as it is not advisable to grow the plants large until you see their quality, and a four or five-inch pot, with light rich soil, will flower them beautifully, if they are kept a little shaded, and well supplied with water. These little pots are also extremely useful for supplying baskets and vases, as when turned out when showing flower, or even in bloom, they scarcely ever feel the change. Seed from very first-rate kinds is not to be procured in the market, though a packet may be got for a few pence, from which you may expect to get some very pretty things, though perhaps not a great many that would just please a florist's eye. It is too late to sow them now this season, but you might try some next March, and as the seed is very small a hint or two as to its management may not be out of place now, more especially as the same treatment will apply to the rearing of plants from many other kinds of small seeds. Take one or more of five-inch pots; fill each half full, or nearly so, with drainage; then take equal parts of peat, leaf-mould, and fibry loam, that have been placed over a furnace, or by the side of a kitchen fire, so as to set all worms and insects a flitting; expose it to the atmosphere for several days afterwards, and then rub it into pieces through your hands, so that the largest piece shall not be bigger than a small marble; then sift it through a three-eighth-inch sieve—what remains is to go over the drainage: sift again with one of the finest sieves you have, and with what remains in the sieve, after adding to it a little sand, fill the pots to within half an inch of the top, when pressed firm; then, after adding a fifth part of silver sand to the fine matter that passed through the sieve, fill up to within a quarter of an inch of the top, and give all a thorough good soaking with water, either by using a fine rose, or, what is quite as well, setting the pots just over the rim in a pail or tub of water. After the pots have stood in a shady place for a day or two to drain, the surface may have just the slightest sprinkling of the fine soil thrown across it, and then be smoothed with a round piece of wood, with a nail or pin stuck in the centre for holding by, and kept for this purpose. On this smoothed surface sow your seed; scatter over it the slightest portion of your fine soil, or a little dry silver sand, and press the surface again, and cover the pot with a square of glass laid over it. Place the pot in any shady place in a cold pit or frame in August or September, and in a shady place in any house where you can command a temperature of from 45° to 50° in the month of March. If no shady place is within your reach, say in a window, then the glass should be covered with cloth or paper during the day. By such process you will scarcely ever require to water the seeds until they are up. It is this watering which, in the case of small seeds, often either washes them over the pot, sinks them in a mass of mud too deep for their germination, or makes the surface so hard that they cannot get through it, because the air and its oxygen does not reach them. They may thus be raised admirably in the window of a sitting-room, and a pretty and instructive amusement it would be in the case of spring-sown seeds. Even autumn-sown ones would do well were it not that the air of the room during winter would be apt to be too close and dry, but the latter would be greatly obviated by having the plants standing, not upon, but above, a vessel containing a thin stratum of water. When once our cottage friends get fond of these plants they will soon manage them well enough. In extreme cases in winter they should preserve their little favourites by placing above them oiled paper caps, which will answer the purpose as well in their case as the pretty Wardian cases do in that of their wealthier neighbours. But I have almost forgotten to tell you that your labour with seedling calceolarias is not done with the sowing of them. As soon as they are big enough to be got hold of, though not larger than a good pin-head, they must be pricked out one inch apart into pans, or boxes, or pots, prepared somewhat similarly to the seed pots, and then, as soon as these begin to touch each other, they must be potted, at first three in a pot, and then separately. In the description of the seed pot, you may imagine that the most of it is unnecessary, and involves much trouble, which might as well be avoided, but I can assure you that if followed it will save you trouble and disappointment too, and I can speak confidently, having thousands of pots so filled every year for seeds and cuttings. Of course all this seeming trouble is not gone through for one seed pan; but when the soil is thus prepared, and carefully placed aside, it is always ready, according to its quantity, for filling scores, or hundreds, and may then be done quite as quickly as we have recommended as when a person stuffs a pot with what comes first to hand, with every probability of having it in his power to rail at the badness of a certain seedsman's wares, which seems much more pleasant than blaming his own carelessness. Rare broad shoulders these seedsmen ought to have; though, like the rest of us, far from blameless, they are yet often more sinned against than sinning.

I can only, at present, add one word on *shrubby calceolarias*. Most of them may be kept, with common care, in a cold pit, window, or greenhouse. They are easily propagated in a cold pit, or under a hand-glass, in September, and still easier when commenced to grow in spring, with the assistance of a mild bottom-heat. If you have a few fine specimens in the borders which you wish to preserve, you may repot them carefully now, if you can plunge the pot in a mild bottom-heat, to encourage the formation of fresh roots, the top of the plants being sprinkled, and shaded from the sun to prevent evaporation, and kept cool by the admission of air. Without these precautions, you may keep your plants green during the winter, but ten to one they will bid you good-bye in the spring. R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

At page 30 we endeavoured to describe the best kind of houses in which to cultivate orchids, so far as the walls, aspect, and glazing. It now remains to describe the mode of heating, the shelves, and the stages.

Heating.—As these plants require during the seasons of growth a larger amount of moisture than most other plants, the mode of heating must be so contrived as to yield that moisture with the least expense of labour, and the greatest certainty. Now, the plan to adopt in order to effect this is to heat the houses with hot water pipes, laid in tanks. The water in these tanks should be deep enough to cover the pipes about an inch with water. The tanks need not be more than ten inches wide, inside measure. The diameter of the pipes should be 3½ inches. At some convenient place there ought to be a tap to let off the water out of the tanks. This ought to be done frequently, in order to obtain a sweet moisture. If the water be allowed to remain in the tanks for a length of time it becomes foul, and then when heated sends forth a disagreeable smell, which is very unhealthy both to the plants and those persons who may either visit the houses to inspect the plants, or have to work amongst them. In winter, when the plants are, or ought to be, mostly at rest, they require a drier atmosphere. In order to induce this, the tanks ought to be emptied during the winter months from the middle of October to the middle of February. Should the plants appear to shrivel too much, the pipes may be occasionally syringed early in the mornings of fine days. The number of pipes and tanks required depends, of course, upon the size of the houses. The large house at Messrs. Henderson's, of Pine-Apple-place, has four tanks in it; the width of the house is eighteen feet. Two of those tanks are open, that is, have no cover, and are placed under a platform formed with large thick slates, spaces being left between each to allow the moisture to ascend amongst the plants. The other tanks have covers to them, with holes to let out the moisture. These holes have brass lids to fit them, so that the moisture can be confined as circumstances require. Now, this answers the purpose well during the months of spring, but we have too much moisture during winter, so that the plants grow more than they flower. Supposing, then, a house eighteen feet wide requires four tanks; a house fourteen feet will require three; nine feet, two; and less than that only one. The return pipes may run under the tanks to the boiler, or if the tanks are placed so near the floor that the return pipes cannot be placed under, they may be arranged to run on one side. The best kind of boiler we know is one formed of several round pipes, connected at each end by a square one. From this square pipe the hot water rises into the tanks, and the return pipes bring the water back to it to be reheated. Mr. Taylor, the hothouse builder, at Kensall New Town, is in the habit of putting up these boilers, and they answer admirably.

Shelves.—In any convenient part of the house where a shelf can be put so near the glass as to allow plants in pots to be placed upon it, it is desirable to have them. We have always found small plants, in pots, that have made a good start to do well in such a situation. The plants, however, should not be too near the glass. The extremity of the leaves should be at least nine inches from it. The shelves, also, should not be placed where the water that overflows or runs through the pots will drop upon any plants, nothing being more injurious to the young growth of orchids than a frequent dripping of water upon them.

Stages.—The arrangement of these in a proper manner is a matter of considerable importance. This arrangement will depend upon the width of the house. If the house is wide enough to allow a walk all round it, and a walk in the centre, there will be two stages. The centre walk should be elevated as high as possible, to allow head room for the manager and visitors to walk comfortably. This elevated walk is of considerable use, affording a good opportunity to watch the progress and state of the plants, and to observe when they require watering, repotting, and cleaning from insects. An example of this arrangement may be seen in the orchid house at Kew.

Shelves of the Stage.—Every shelf ought to be a shallow cistern to hold water. Blue slate is the best material to form each shelf on the stage. The upright slate forming the sides of each ought to be elevated at least two inches, and made water-tight. These cistern-shelves may either be filled with small pebbly gravel, all the sand or other binding material being washed out of it, to prevent it setting hard, or they may be left empty, and shallow pots turned upside down, just high enough to allow the plants to stand clear of the water; for it is intended that these cistern shelves should be during summer kept full of water. These shelves of the stage must be as near the glass as the size of the plant will allow. Several advantages to the health of the orchides accrue from this arrangement. The most important is a constant supply of moisture to the air, at a time when the heat of summer renders the application of heat to the tanks unadvisable. The giving of air, too, at this season, soon carries off any moisture that may be given to the internal air, by syringing the plants, walls, and walks early in the morning, and it is not desirable to syringe the plants in the middle of the day. The dry air rushing in at the places where air is given soon sucks up all the moisture from such sources, but the cisterns supply in a great measure the deficiency so occurring, and thus prevent the languishing which would take place without them. Another advantage is the prevention of the attacks of insects, such as cockroaches, woodlice, and slugs; these destructives cannot travel through water; they do not like to wet their feet or bodies, and as the plants stand, as it were, upon a number of little islands, they are protected both day and night from these devouring enemies. Care, however, must be taken that the citadel itself does not harbour them. The cockroach and woodlouse often secrete themselves during the day amongst the rough pieces of turf and broken pots used as drainage. If there is any suspicion that these enemies are in those secret places, they must be diligently sought for, first by visiting the houses with a bull's-eye lantern by night, and catching them at their depredations. Pursue them with all your diligence. Should the tender roots, or flower shoots, still appear to be eaten occasionally, take the severe measure of turning the plants out of the pots, and search for the vermin amongst the peat and potsherds. When they are once entirely got rid of, take care to place the plants so that their leaves do not come in contact with any thing that will form a bridge for the insects to travel on, and find an access to the plants without having to cross through the water, which they will never do.

Hanging up the Plants on Logs or in Baskets.—Large-headed nails, or hooks, may be driven into the rafters, or strong iron rods, well painted, may be suspended along the roof over the walks, and strong iron hooks, shaped like the letter S, placed at proper distances to hang up the various kinds of plants that require such situations. We recommend the situation for these to be over the walks, to prevent the water, when applied upon the plants, falling on the stages or shelves. Where these plants are numerous, it is advisable to devote a part of the house to them. Underneath would be a convenient situation for a cistern to contain the rain-water that falls upon the roof, the best of all water for watering purposes.

FLORISTS' FLOWERS.

We are now arrived upon the very verge of the gloomiest and most foggy part of the year. In consequence of such weather, florist's flowers in pits require the most vigilant care. All decaying leaves must be daily removed, plenty of air given, the plants protected from all rain falling upon them, and little or no water given unless they actually flag for want of it. When water is given, it ought to be moderately, and upon fine sunny mornings, which sometimes come cheeringly upon us even in this dreary month. *Snails* and *slugs* will now be prowling about seeking their food, and, if not timely destroyed, will often spoil the finest plant, and frustrate the hopes of the amateur for the next year. Their slimy track will often lead to their hiding-place, where they may be found and destroyed, or traps may be laid for them. Cabbage or lettuce leaves and brewer's grains will entice them to show themselves, where they may be easily caught. Every means must be used perseveringly till the enemies are all destroyed. Sometimes *worm-casts* are seen on the surface, indicating that another kind of injurious reptile has appeared to tease and give battle to the zealous cultivator. They may be easily destroyed by watering with lime-water* whenever the plants require it, but as, at this time of the year, water is not often wanted, these disturbers of the soil may be got rid off by carefully turning out the ball of earth without breaking it. The worm, or worms, will generally be found creeping on the outside of the ball, and may be easily picked out and destroyed; should they have made a secure lodgment in the centre of the ball, you may startle them out of their quarter by gently striking the ball with the hand, or thrusting in a sharp-pointed stick, but this must be done carefully, or the ball will be broken, and the remedy be worse than the disease. T. Appleby.

THE KITCHEN-GARDEN.

Asparagus.—This vegetable may now be taken up for forcing, and those who have old asparagus-beds to destroy may obtain a succession of very good forced shoots by taking up the old plants carefully, and putting them on a well-prepared bottom heat; but those who have the opportunity of procuring healthy vigorous plants, about three or four years old, may obtain without difficulty, by the same process, as fine asparagus as is ever produced at the proper season in the natural ground. We have too often noticed one very great mistake in the forcing of asparagus, which is the placing it at first on too strong a bottom heat. This causes an unnatural and too hurried an excitement, which should be particularly guarded against, as the produce is thereby injured both in quantity and quality to a very serious extent, and the continuance of its productiveness is very considerably curtailed. Those who have the hot water apparatus for forcing may at all times obtain the exact quantity of heat which is really necessary; but those who depend entirely on fermenting materials must begin by preparing slight hot-beds of good stable manure, which should be raised sufficiently high from the ground to admit of linings being added, to increase the warmth at the proper season. By a judicious application of these linings the temperature of the pits or beds may be easily regulated, and the pits or beds might be raised upon a foundation of refuse wood, or a trench be thrown out around them, to admit a sufficient quantity of fermenting materials being added when required.

Beans.—Those who at this season have any warm sheltered corner to spare may plant a small portion of early Mazagan beans. The sheltered side of a sloping bank or ridge is the best situation.

Celery.—Attend to the various crops of late celery, and take advantage of all dry days to continue the earthing up; forking the whole space between the ridges or celery-beds into rough slopes or ridges, so that the earth may thus become sweetened, pulverized, and dry, ready for earthing-up the plants.

Endive should be tied up in succession, and growing plants should be placed under protection.

Lettuce.—The good sizeable plants should now be placed in sheltered situations for winter use, and the young autumn-sown plants be well surface-stirred between, and kept clear both from decayed leaves and slugs. When required sprinkle a little dry dust amongst them.

Onions.—The autumn-sown should also be kept clear from weeds and accumulated leaves. If inclined to draw up too much, let dry dust be sifted amongst them, which will tend to make them firm and hardy. The stored onions should often be looked over, and all decayed ones removed. *Potato onions* may now be planted, as well as *shalots* and *garlic*.

Potatoes for next year's main crops should now be planted. The only rules necessary to be given are, plant early-ripening kinds, plant six inches deep, and plant on ground manured last winter or early spring. On no account manure the ground at the time of planting. If your soil is heavy, or wet, do not plant until February, but keep your sets stored in a shed between layers of earth. Do not plant *Walnut-leaved Kidneys* anywhere out of doors until next February.

Brocoli.—Continue to remove full-grown plants as before directed; also any of the green tribe, such as the *Borecoles* of any kind. Those latter may be taken up with care, and planted again with the spade, in rows two feet or two feet six inches asunder, and as close as the plants can be put in without injury to their leaves. There are three good reasons for moving these kinds of plants; first, because it checks their great vigour and better enables them to stand a severe winter; secondly, because any nook or corner, or any quarter that is not of so much consequence, will do for them now; thirdly, because it clears the open quarters, that may be of great consequence to the quick-sighted and active cultivator, who has a small garden and a great demand from it. Wherever the plants of *borecoles* are planted, let them be put in upright and not much deeper than before, but made firm, for their tall stems are required for their side shoots; but *brocolis* lay in deep and bury the stems well up, always placing the heads towards the north, whether it be in an open quarter or under walls. The quarters thus cleared may be prepared for either potatoes, broad-beans, or peas, during fine weather.

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* Lime-water is made by pouring water upon unslacked lime. A peck of lime will make eight gallons of lime-water.

Routine Work.—Allow no spare ground to be idle. Manure, trench, and fork, and if not required for planting at this advanced season, let the manure, at all events, be got on to all spare ground, and be at once ridge-trenched. The wheeling on of manure should be done early in the morning or late in the evening, when other jobs cannot be so well attended to. Let cleanliness prevail everywhere. Look to the edgings of the walks, to the walks themselves, as well as to the alleys, and let due attention be given to drainage, which is the foundation of all good culture. See, therefore, that all ditches and water-courses are in good order. James Barnes & W.

MISCELLANEOUS INFORMATION.

OUR VILLAGE WALKS.

(No. 4.)

One of the loveliest objects in our English scenery is a beech tree in October. Nothing can exceed the richness and softness of its varied tints, or the beauty, generally speaking, of its form. We occasionally see the round-headed beech looking like an enormous cabbage, and in its autumnal dress its formality is almost forgotten; but the tall, graceful, feathery beech, with its drooping boughs, decked out in the beautiful colouring of its departing foliage, is decidedly the ornament of the landscape. Lovely as is the fading tint of every forest tree, the beech surpasses them all; and in Sussex and Hampshire, where this tree peculiarly abounds, the autumn must indeed be a season of unspeakable beauty. The finest beech trees in England are said to be those of Hampshire; but the forest of St. Leonard, in Sussex, is described as abounding in noble specimens also. Among the beautiful things of English nature, too, the Burnham beeches are described as taking a conspicuous place. They stand as monuments of by-gone ages, near the little village of Burnham, about two miles from Maidenhead, in Berkshire. The size and evident antiquity of their trunks, and the gnarled and twisted forms of some of them, appear to be very remarkable; and the writer, whose account of them is full and very interesting, adds, "I recommend every lover of nature, once in his life, to visit the Burnham beeches." The beech is a very useful tree, as well as one of extreme beauty. Its wood is next in value to the oak and ash; and, for water-pipes, is said to be little inferior to the elm. It is well adapted for all domestic purposes, because it retains its whiteness, and is well suited for bread plates, bowls, &c., on that account. The London strawberry baskets, called pottles, are all made from the beautiful beech-tree; and among the Greeks and Romans it was very highly esteemed, not only as the ornament of the soil, but as a useful and valuable wood. The beech nut is pleasant to the taste, and I have *read* that the flour obtained from it makes good bread; and as the Greeks called it by a name signifying "I eat," it is possible that in those early times it might have been used for this purpose. The oil expressed from these nuts is considered equal to the best olive oil, and even to keep longer without becoming rancid. What an advantage it would be to us could this process be effected! But a patent was once granted for making beech-oil in this country, which was attempted in vain, because the common people preferred collecting them for their pigs to selling them to the patentee, thus entirely defeating his very promising design. The oil is very generally used in France, in places where these trees abound; and it is used instead of butter in Silesia. The cakes which remain after the oil is extracted fatten poultry, pigs, and even cattle. A bushel of mast or nuts will afford a gallon of good oil. The dry leaves of this tree collected in the autumn are most useful to fill mattresses, as they remain sweet and soft for many years. The fresh leaves are said to be good, when chewed, for the teeth and gums; and they were used by the Romans, mixed with honey, to restore the hair when sickness had caused it to fall off. We may, indeed, call the beech the cocoa-nut-tree of England—in so many ways it is valuable, and might be so extensively useful: its wood, its leaves, its nuts, might all be turned to good account; and if the oil were obtained in sufficient quantity it might become as extensively used, and as useful in this country, as it is abroad. It is extremely wholesome, and would be advantageous in many ways to rich and poor. In this age of enlightenment and enterprise would it be possible to carry out the oil-making system? The business of collecting the nuts would employ children, and be a little help to their parents; and the dry husks make a capital "backing up" to the cottage fire. These trees might be more extensively cultivated in England; and in favourable situations they are fit for felling in about twenty-five years. They thrive extremely well on stony ground and on chalk, which is so little suited to trees in general. On our own property there is a very large and deep chalk-pit, at the bottom of which stand three or four noble beech-trees. The coating of soil above the chalk is very thin, yet they flourish as richly as those on higher and better soil, and I often regret that such fine trees should be in so secluded a situation. The beech is found also to resist the sweeping winds on hills better than any other tree, thus accommodating itself to very unfavourable situations, and almost asking to be allowed to clothe and decorate the many bleak places our island home possesses, especially in her northern regions; and to be firing, food, and furniture to all around them. The beech is raised from seed. I have seen the whole space beneath their spreading boughs so thickly covered with little seedlings, that it seemed like a coarse kind of grass. The mast should be collected when they begin to fall, spread on a mat in an airy place to dry, and either planted immediately or kept in bags for spring sowing, which is the safest way, because vermin may destroy them in the winter. They need not be sown more than an inch below the surface, and they will not all vegetate the first year; but by leaving the ground undisturbed young plants will appear the following season. Let us henceforth regard the beautiful beech-tree with double admiration. It is no unprofitable ornament to our woods and wilds; it would benefit us much if it could, if we would use it freely and thriftily, and is peculiarly suited to screen the cottage garden and orchard from withering winds, as it cheerfully submits to be trained as an espalier, in this way forming a sturdy hedge, and generally retaining its leaves till they are fairly displaced by those of the next season. Till we think and inquire a little about some of the beautiful things we see, how much instruction and pleasure is lost to us! We admire a lovely object in nature, it pleases our eye and taste, but knowing nothing about it we turn away and forget it. How much its interest is increased when we learn its history or its uses, for there is *use* in every thing. If we glance round our cottage homes, whatever our eye rests upon was *once* either a noble portion of the forest or the field, or a creature full of life and vigour, or the rich mineral lying hid in the soil on which we tread. All our wants, our necessities, our luxuries, are heaped around us by the gracious Hand that formed even our wondrous bodies out of the dust of the earth. Every twig we see has, or will have, its use. Is it not, therefore, our bounden duty to employ the gifts of God with diligence, economy, and liberality? Let us neglect nothing, for by care and thriftiness we may, in our poverty, turn many things, which now we disregard, into good account. Poverty may restrain our hands in many ways, but ignorance and idleness are still greater hindrances to the poor cottager. The words of Solomon are confirmed in our daily experience, and let the cottager and his wife remember them, "By much slothfulness the building decayeth; and through idleness of the hands the house droppeth through."

EXTRACTS FROM CORRESPONDENCE.

Water-tight Taps. — Although a subject not strictly within your province, it might prove useful to some of your subscribers to know where to procure a tap that will not leak at ever so high a pressure. For instance, in preserving rain-water in tanks, in or out of a conservatory, it is a great nuisance to have a tap that cannot be left without some vessel to catch the drippings, and where there is great pressure all precautionary measures with a common tap are vain. I myself suffered greatly from this, for having the water pipes laid on to the top of my house (our supply being derived from the water works in St. James's Field, at a great elevation above my house), it was to me a source of great annoyance to find the rooms constantly swamped by the water oozing from the unfortunate taps. The plumbers were in frequent requisition, and all means devised as a remedy; fresh grinding the plugs was proposed, which, being done, soon proved in vain, for the incessant spirting returned with full force. I began to think of cutting off the pipes and returning to the old "jack pump," when I happened to meet with the advertisement of Mr. Jennings, of Blackfriars-road, London, announcing an invention (an India-rubber tube-cock) which would effectually prevent this leakage. I had all my water-pipes fitted with them, and was never better pleased with anything in my life; they have now been in constant use these nine or ten months, and have given me the greatest satisfaction. These tube-cocks are made in the usual form, but have a tube of India-rubber running through them; they are shut or opened by means of a screw, which, forcing a wedge upon the tube, so effectually closes it against the greatest pressure that not a drop of liquid will pass. I strongly recommend these taps, and shall be most happy to shew those fitted on my premises; they may, I believe, be procured at the price of the old sort at every house where such things are sold, and are known by the title of "Jennings' Patent India-Rubber Tube-Cocks."—W. Savage, *Friary Cottage, Winchester.*

[We have seen similar taps used for water-butts, &c., and with entire satisfaction.—Ed. C. G.]

Indian Corn.—Some years since, when there might have been said to be a "mania" respecting trials with Indian corn, I, amongst others, in my then neighbourhood, made some experiments, and I believe that the general conclusion we arrived at was, that it would never answer as a substitute for any other grain grown in this country. For myself, I will give you the results as well as I remember. In the garden, with very great attention and manure, such as would never remunerate on a large scale, I had excellent returns, both in quantity, quality, and perfectness of ear; but, wishing to give it a fair trial, I planted from one quarter to half an acre, paying the same general attention that might be afforded to potatoes or wheat, and the result was a failure regarding quantity and perfectness of ear. I boiled it when in "cob," as a vegetable for the table, and for which I think it only forms a poor variety. A pudding made with the meal after the manner of ground rice, rivals, if not equals, that general favourite; in bread, mix it in what proportion you please, with wheat or any other flour, and you cannot prevent the bread being gritty. I also thought I would test its feeding qualities, which I did by putting up to fatten two pigs at the same time and age, in fact from the same farrow, feeding one on barley-meal and potatoes, and substituting as food for the other Indian meal (which I had ground from the crop I had gathered,) and potatoes—the food in each case being equal in quantity. The result was, that the pig fed with the Indian meal was fit for the butcher a fortnight before its companion. I have grown it since, as a "hobby," but nothing more. It cannot be recommended for a small garden where room is an object. I am induced to trouble you with these remarks, thinking that, should you deem them worthy insertion, they may be the means of preventing the *really* cottage gardener sacrificing a portion of his land to a crop that will end in disappointment, and from which land a much more remunerative return would have resulted had he not made this selection.

TO CORRESPONDENTS.

Name of Apple (*H. R. S.*).—Yours is the *Hawthorden* variety. The original tree is still in existence at Hawthorden, near Edinburgh. Nothing is more uncertain as a characteristic of fruit than its keeping qualities. Soil, season, and storing, make strange discrepancies.

Hollyhock Cuttings (*J. Philpott*).—These which are rooted had better be turned out at once into the borders where they are to remain. *Fuchsia seed* sow next March or April in a gentle hot-bed. See p. 20 of last volume. The bottom heat must not be higher than 70°. *Fuchsia cuttings* may be struck now, or in May.

Management of Cows (*Omega*).—We do not know the book you refer to. You can obtain it through any bookseller in Pontefract if it is in existence.

Name of Pear (*James Barr*).—Your pear is the *Chaumontel* variety. It should be gathered this month. This fruit is complained of as not keeping well; it never keeps well if grown on a wet, heavy soil. It requires watching, and eating as soon as ripe, for it speedily becomes bitter.

Drum-headed Cabbage (*G. R.*).—This keeps well through the winter without any extra care. We have never grown *Keen's hybrid maize*. The azalea is called the *upright honeysuckle* by the common people in America, but you, perhaps, mean the Canadian honeysuckle, *Lonicera canadensis*. Coal-ashes are beneficial to some meadows, but not to others. It depends entirely upon the soil.

Pigeons (*A. A. Z.*).—At the close of the present volume we shall probably proceed to give very full information relative to these birds.

Hyacinths in Pots (*W. D. Paine*).—Those intended to be turned out into flower-beds do not require drainage. Let the roots escape through the bottom. Plant *Jonquil* bulbs with their tops three inches below the surface. *Crown imperials* planted in rows should be two feet apart, but in the shrubbery they look well in clumps—three or five together.

Sand for Storing Roots (*S., of C.*).—The sand you enclosed will do well for the purpose. Sea sand is the only kind that is objectionable, because it becomes damp; the salts it contains absorbing moisture from the air.

Old Apple-tree (*T. M.*).—Its fruit is worthless, being little better than a crab.

Woodlice (*H. S.*).—Slices of turnips or potatoes placed under pieces of board in different places about the cucumber beds will induce the woodlice to secret themselves under these, when they may be collected every day and killed. The name of the plant you enclosed is *Beloperone oblongata*; a stove shrub, native of Brazil.

List of Fruit (*S.*).—We have classed your apples for you; at least, such of them as we know. If you refer to other parts of our pages you will find rules for gathering and storing them. All your *pears* are dessert fruits; and we need say nothing about your cherries, peaches, nectarines, and apricots. The *Winesour plum* is best as a preserve. *Dessert Apples.*—Ribstone Pippin, Greave's Pippin, Devonshire (Dockers), Chester Pearmain, Lancashire Reinette, Blenheim Pippin (kitchen also), Scarlet Golden Pippin, and Chelstone Pippin. *Kitchen Apples.*—Hawthornden, Northern Greening, King of Pippins, Alexander, Cornish Crab, Keswick Codling, Nelson, Cockpit, Bath, Bedfordshire Foundling, Normanton Wonder, and Holland Pippin.

Wintering old Geraniums and Fuchsias (*R. C. S.*).—We think we have answered this question a dozen times, and shewn every possible way. Pray refer to our two or three last Numbers. You say, "I presume that the roots, if taken up, and well dried, and tied together, and hung up in a dry dark cellar, would live through the winter. We say yes, or anywhere else free from damp and frost.

Soft-wooded Plants (*R. Hobley*).—Your plants will do best on shelves in your cold pit, if you have head-room enough for them.

Scarlet Rhododendron Seed (*R. D., Ireland*).—You have been misinformed. The scarlet rhododendron will ripen its seeds in every county of the dear old country; but it is too good to sell, or too scarce, for we seldom hear of it in the market, and cannot say where it can be bought.

Clematis Propagating (*Tyro*).—You ask for the best way of doing this, but, before we can answer, you must say which of the very numerous species you mean. Some are raised from cuttings, and others from layers.

Hop Propagating (*Ibid.*)—Hops are usually raised from shoots issuing from the bottom of the old plants. The shoots are covered, or layered, till they make roots. They may also be raised from seeds. They are, however, not within our province.

Glycine Sinensis (*Ibid.*)—The leaves turning yellow shew that there is something wrong at the roots. A very wet, or very poor soil, may be the cause. Situated as you are, your *magnolia* will not need protection.

Name of Begonia (*T. J.*)—Although a cutting is sent by you, it is from a weak and stunted part of your plant, and has two leaves upon it. This is a long way from being a fair specimen to send to any one for the purpose of ascertaining its name, particularly when the family is a large one, as in this of the Begonia. A specimen in flower, and one that shows the whole character of the plant, is what we consider a fair specimen. We believe your plant to be the *Begonia nitida*. For your staircase window, *Begonia discolor*, or *Evansiana* of some authors, is the most hardy kind that we know of. *B. parvifolia* would stand for a considerable time in flower in the same window. All the begonias are properly stove plants, and delight in plenty of heat, notwithstanding some are tried to be grown in houses of all work, and sometimes in pits.

Pomegranate (*Mrs. Corrie*).—No part of Hampshire is too cold to flower the pomegranate against a south wall. We have seen it flowering and ripening fruit as far north as Morayshire, treated like a pot-vine; that is, kept dry in an out-house all the winter, and taken to a forcing-house in March. Cut out entirely half of the very small shoots now, and prune back those that are strongest of this season's growth. Let the plants rest all the winter, under the stage of a cold greenhouse. As soon in March as you see the buds swelling shake half of the present soil from the roots, and replace it by a rich compost. Keep the plants in doors till the end of May, and after that under the south wall, when they will be very likely to flower.

Small Hyacinth Bulbs (*C. J.*).—Plant them three inches deep and six inches apart in the compost recommended for old roots; in three or four years they will come to a flowering size, and in seven years be as good as foreign bulbs if you treat them well.

Verbena Cuttings (*J. M. Lee*).—Pray refer to our answers in previous numbers. We can hardly recommend roses without knowing any one of your tastes or objects. If you will refer to our descriptive lists of roses, in our first volume, you might select for yourself; for there we give the colours, time of blooming, &c. However, supposing we had to plant the roses according to our own taste, we should select for the centre—Madame Laffay, Baron Prevost, Duchess of Sutherland, and William Jesse. These roses ought to be on their own roots; if they are not, choose those on the shortest stocks; they will flower all the autumn. A row of China roses all round would make a variety. We should put Fabvier, Madame Brehon, Henry the 5th, and Mrs. Bosanquet in one basket, and in the other scarlet geraniums, with an edging of white and ivy-leaf geraniums.

Tritoma uvaria and media (*C. H. W.*).—Plant these out at once; October is the best month. Put them under a south wall, or in the front of a greenhouse. They flourish best in peat, but will do if it is mixed with one-third of sandy loam. They require a slight covering during frosts. You may obtain them, and *Anemone vitifolia*, of any florist in your neighbourhood.

Chichory (*G. M. L.*).—You will find all the information you can require for its culture at pp. 50 and 191 of our last volume. Thanks for your note, which we will insert soon.

Digging Flower Borders (*J. W.*).—Dig them over roughly now. The frost and snow will benefit the soil, and little more than the hoe and the rake will be required in the spring. Take care not to disturb your bulbs.

Azaleas and Camellias (*R. W. Laxton*).—These will do better in your greenhouse than in your pit.

Heliotrope (*J. B., Bury St. Edmunds*).—This should be kept through the winter in an airy part of the greenhouse, keeping the soil just free from dryness, and excluding the frost from it.

Scented-leaved Geraniums (*W. C.*).—The following list includes all yours except Balm and Currant-leaved, and may be obtained of the London nurserymen:—Apple-scented, Blandfordianum, Betulœfolium (Birch-leaved), Capitatum or Rose-scented, Capitatum major, nervifolium, and odoriferum; Citriodora, Citriodora major, rosea, and purpurea; Fair Emily, Fair Hellen, Fair Maid of Scotland, Ivy-leaved white, purple, red, and striped; Lady Plymouth, Lady Scarborough, Lobatum or Peppermint-scented, Lemon, Large Gold-striped, Striped (several varieties), Odorata superba, Odoratissima, Odoratissima erecta or Nutmeg, Prince of Orange, Princess Augusta, Quercifolium or Oak-leaved, Quercifolium major, Radula or Pheasant's-foot, and Serratifolium. There are several other varieties, and we know of more than one gentleman who is hybridising and raising fresh varieties annually.

Thoughts (*G. J. B.*).—We are highly gratified to find that our instructions have enabled you to convert "a bank of rubbish into a lovely flower-garden;" but the good "thoughts of one of Northumbria's fairest daughters and of high degree," must not occupy even a corner of our pages to the exclusion of other more practical contributions.

Weigela Rosea (*C. W. B.*).—The plant growing in your border we should leave where it is. Do not prune it, nor give it any protection, except two or three inches of coal-ashes over the surface above its roots. If your soil is not wet and exposed, and you are not living very far north, the plant will survive the winter, and bloom well next season.

Vines in Greenhouse (*H. Taunton*).—You had better keep a little fire at your greenhouse for the sake of your grapes, with plenty of air, for the sake of the plants. If the bunches are placed in thin muslin, or even paper bags, the damp rising from the flower pots will not be so likely to injure them; but then that would not assist their *colouring*, which, if so defective, we fear will not now be greatly bettered this season, as we should think the grapes must be ripe.

Hardy Creepers for outside a Greenhouse (*T. W. T. Leeds*). The *Dolichos sinensis* is hardly worth growing in a greenhouse, as the flower is a dingy red, and hardy enough for the open air, in most places. As luxuriant creepers, which you wish to train along the 25 feet in length rafters of a greenhouse, and hardy enough to be planted outside, without protection to the roots, we instance the following:—*Dolichos lignosus*, purple, the best of the family; *Cobæa scandens*, large bell flower, greenish purple; *Glycine sinensis*, flowers early and fine in a house; *Bignonia grandiflora*, orange; *Jasminum revolutum*, yellow; *Passiflora coerulea*, whitish blue; *P. colvilli*, variegated; *P. coerulea racemosa*, purple; *P. alata coerulea*, rose. These will all flourish in light sandy loam, with a portion of peat. But though the roots are not covered, the stems where they enter the house should be secured with small boxes set against them, filled with saw-dust, so that no frost or damp may touch them in winter. If the border was scattered with a few spruce branches in cold weather, it would be all in their favour. If the border was "*very much shaded*," or badly drained, we should prefer growing them in pots in the house, if they could not be planted *out*, or substituting for the Bignonia and the two or three last Passifloras such plants as the Maurandya, Eccremocarpus and Lophospermum.

Geranium Cuttings.—*An Amateur* will find his efforts much more successful *now* that he has a stove to his greenhouse. "The valuable geranium cuttings, in sand, under glass in the compost yard, not yet sufficiently rooted," will not be safe if left there during the winter, as, without great care, they would suffer both from cold and damp. Take them up carefully, and place them in sandy soil, around the edges of small pots, and make such an arrangement in transferring them to a good position in the greenhouse, that you can cover them for a time with a hand-glass, or an oiled paper box, and thus, while your greenhouse plants are luxuriating in the fresh air you will be giving them, your proteges of cuttings will be as secure from evaporating their juices as when they were snug in the compost heap. It would be advisable to take off the glass at night, to prevent them being drawn weak.

Garden Plan (*J. A. M.*).—The arrangement of a garden must ever depend upon the tastes and wishes of the proprietor, and, therefore, we can only allude to the matter in general terms. 1st. As the north and west borders are cropped with strawberries we would fill the east with the same, unless it would give you more than you require. By having the north border chiefly supplied with late kinds the fruit season would be longer prolonged; full directions for their treatment have already been given. 2nd. The espaliers should be brought into a little shape if they are to remain; if too far gone for training they may be left as dwarf standards, or turned in a circular manner round stakes. If there is only two feet from the trees to the walk little could be grown in such a border with advantage, unless perhaps a few violets, heartsease, or pinks, as they would not interfere with the trees. 3rd. Under the large space occupied by the large trees, and which we presume is next the house, if not very thick, we would collect all the pot-herbs into one corner. Violets, bulbs, and early low-growing spring plants, and heartsease, would also flourish in the open spots. Next to these trees we would have our flower-beds and fruit-garden, by collecting all the currants, gooseberries, raspberries, &c., which are scattered about in the borders, so that each part of the garden might convey a different but distinct impression—fruit and flowers in one place, vegetables in another. 4th. The common garden *wheelbarrow*, made of wood, the wheel shod with iron, is the best for general purposes.

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WEEKLY CALENDAR.

M D	W D	NOVEMBER 8—14, 1849.	Weather near London in 1848.			Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
8	Th	Larch turned yellow.	T. 45°—22°.	N.W.	Fine.	8 a. 7	20 a. 4	morn.	23	16 4	312
9	F	Pr. Wales b. 1841. Lord Mayor's day.	T. 43°—28°.	N.W.	Fine.	10	18	0 41	24	15 59	313
10	S	Bunting's notes cease.	T. 44°—30°.	N.	Rain.	12	16	1 52	25	15 53	314
11	Su	23 Sunday aft. Trinity. St. Martin.	T. 46°—39°.	N.E.	Rain.	14	15	3 2	26	15 47	315
12	M	Larch leaves fall.	T. 46°—35°.	N.E.	Rain.	15	13	4 11	27	15 39	316
13	Tu	Britius. Wood pigeons in flocks.	T. 49°—27°.	N.W.	Fine.	17	12	5 19	28	15 31	317
14	W	Widgeon comes.	T. 48°—24°.	N.	Fine.	19	11	sets.	●	15 21	318

Lord Mayor's Day.—London and all other towns, until the time of King John, were governed by *reeves* or *bailiffs*, but that monarch, in the year 1209, changed the name of this chief officer to *mayor*, which is undoubtedly derived from the French *maire*, a steward, and signifies the Steward of the City. The first *elected* Lord Mayor of London was Henry Fitzalwyn, and the office was held by him during his life. It was not until 1214 that this office of chief magistrate of the city was made annually elective. Until 1381 he was only styled Mayor of London; but to William Walworth, who in that year held the office, and slew with his own hands the rebel Wat Tyler, Richard the Second granted the title of Lord Mayor, and to commemorate the same event a dagger was added to the city's heraldic shield. London and York are the only cities of which the chief magistrates are distinguished as *Lord* Mayors, and their wives as *Lady* Mayoresses. It is a singular fact that, though the title of three of them only exists during the year of office, yet the fourth, the Lady Mayoress of York, retains her title for life, and as such ranks above the wife of both a bishop and archbishop. Hence the couplet:—

My Lord is a lord for a year and a day,
But my Lady's a lady for ever and aye.

St. Martin was son of a Roman tribune, and born at Sabaria, in Pannonia, about A.D. 316. His division of his cloak with the naked beggar is a charitable act celebrated by more than one of the old painters. Retiring from the military profession, and adopting that of the ecclesiastic, he became Bishop of Tours, and died at the age of 81. The festival of the "Apostle of the Gauls," both on the continent and in England, was celebrated with excessive revelry. Stukeley, speaking of a place called "Martinsall Hill," says, "I take the name of this hill to come from the merriments among the northern people, called *Martinalia*, or drinking healths to the memory of St. Martin, practised by our Saxon and Danish ancestors. I doubt not but, upon St. Martin's Day, or Martinmas, all the young people assembled here, as they do now upon the adjacent St. Anne's-hill, upon St. Anne's Day. In Norway they this day always feasted upon roasted goose, because this bird discovered St. Martin when hidden to avoid his elevation to the bishopric. *We* have transferred this commemorative bird to Michaelmas."

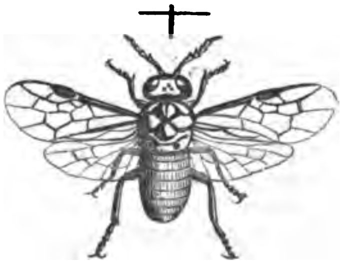
Meteorology of the Week.—The highest temperature of the above seven days, according to the average of the last 22 years, is 49.4°, and the lowest 36.2°. The greatest heat observed during these days was on the 12th of November, 1841, when the thermometer reached 63°, and the lowest temperature was on the 11th, in 1828, when the thermometer sank to 21°. In the 22 years, during 79 of these days rain fell, and 75 were fine. Among the phenomena of the season we may observe that the present is that marked by the most frequent occurrence of the *aurora borealis*. Of one hundred instances of its appearance, 37 were in the months of September, October, and November; 23 in December, January, and February; 29 in March, April, and May; and 11 in June, July, and August.

Natural Phenomena Indicative of Weather.—*Bubbles* on the surface of water remain longer without bursting when rain is approaching, than during confirmed fine weather; apparently because during such change to rain there is a slower evaporation of the thin aqueous film forming the coat of each bubble. *Chickens* being more than usually noisy, flapping their wings frequently, and busking in the dust, indicate a change from fine to wet weather. This may be readily accounted for by our knowledge of the fact that all such changes are accompanied by an alteration in the electrical state of the air, and a consequent change of irritation of the animal's skin. If the poultry go to roost unusually early, and if the cocks crow at uncustomary hours, it similarly indicates approaching wet weather.

RANGE OF BAROMETER—RAIN IN INCHES.

Oct.		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
8	B.	30.333 30.306	30.126 29.959	29.769 29.500	29.096 28.937	29.451 29.335	30.387 30.338	29.596 29.492	30.084 29.983
	R.	0.01	—	0.03	0.53	0.01	—	0.01	—
9	B.	30.291 30.198	29.790 29.634	29.936 29.717	29.077 28.947	29.516 29.478	30.449 30.429	30.176 29.820	30.319 30.169
	R.	—	0.04	0.07	—	0.03	—	—	—
10	B.	30.127 30.061	29.651 29.494	29.720 29.512	29.194 28.919	29.387 29.340	30.432 30.344	30.281 29.963	30.357 30.306
	R.	—	0.03	0.03	0.34	0.04	—	—	0.01
11	B.	29.976 29.934	29.548 29.089	30.112 29.946	29.495 29.177	29.255 29.185	33.278 30.258	30.220 30.095	30.334 30.295
	R.	0.40	0.37	—	0.16	0.13	—	0.01	0.01
12	B.	29.561 29.515	29.516 29.050	30.167 30.136	29.503 29.417	29.662 29.460	30.343 30.314	30.118 30.012	30.419 30.357
	R.	0.06	0.40	—	0.50	0.01	—	0.02	0.04
13	B.	29.431 29.102	29.457 29.284	30.227 30.211	29.828 29.506	29.935 29.725	30.348 30.303	30.231 30.222	30.429 30.323
	R.	0.27	0.29	0.05	0.38	—	—	—	—
14	B.	29.480 29.050	29.763 29.675	30.174 30.124	30.109 30.012	30.028 29.970	30.271 30.216	30.265 30.242	30.351 30.281
	R.	0.04	0.67	0.05	0.12	—	—	0.01	—

Insects.—The upper surface of pear-tree leaves during the months of July, August, and September, are liable to be destroyed by what is very characteristically named the *slimy grub*. These grubs are nearly half an inch long, cylindrical, but thicker towards the head than at the other extremity. The whole body, except at the time of skin-casting, is covered with a sticky, greenish black matter, and from this they have been named. Whilst feeding, the fore part of the body is so swollen that the vermin looks somewhat like a small tadpole. If the slimy matter is removed from the body, this is found to be a grub or caterpillar with 20 feet, and of a pitchy brown colour. At the last-but-one casting of its skin the sliminess no longer appears, and the grubs become of a clayey colour. They finally form a brown cocoon about October, and remain in the pupa state until the following June or July, when the perfect insect comes forth in the form depicted in the annexed cut, but of the size shown by the cross lines above it. It is known as the *Selandria Æthiops.* Linnæus called it the Cherry Saw-fly (*Tenthredo cerasi*), from the mistaken opinion that it attacked the leaves of that tree only, whereas its grubs are more frequently found on the leaves of the pear. This fly is shining black, and the tips of the legs yellowish. The female lays her eggs on the upper surface of the leaves. The slime on the grub is of a peculiar nature, not being dried by exposure to the hottest sunshine.



The time has now arrived when the main crops of potatoes may be planted on light soils with the greatest advantage. In our Kitchen Garden Calendar of last week, we stated the chief points requiring attention, and if those points are attended to the grower will be most likely to obtain tubers the heaviest in amount and the most free from disease. Those who plant thus early will have their crops taken up by the end of July or beginning of August, and thus the potatoes will be ripened before the usual occurrence of the murrain. This result is not that of our own practice alone, it is a result obtained by many individuals in every county of the United Kingdom, and if any one good practice in gardening

THE FLOWER-GARDEN.

ABOUT the end of June and at the close of October, I annually make notes of all the best plants for flower-beds as they appear at those seasons, those months being the boundaries, as it were, of our flower-gardening for the season. Having had a few leisure days, in the absence of the family, between the 20th and 27th of last October, I made my memoranda for this autumn during that period, and, in all probability, some of my notes and observations on them will be of use to others, and thus I shall kill two birds with one stone—a harmless sport. The frost up to the close of my notes on the 27th ult. had only blackened a few of the leaves of the *Heliotropes*, with hardly any damage to their flowers, but the heavy rains which fell at the beginning of the month hastened the destruction of some of the flower-beds sooner than is generally the case, for when we escape the early frosts, as we generally do on this dry and high situation, the flower-gardens look nearly as well in October as at any other season, and arouse much more interest then than earlier, when country drives and rides are more enjoyable. I shall have no room to-day to explain the meaning of such names as I may have to mention, but I shall do so some other time. The book names, however, are the only ones which are safe to use in ordering the plants or the seeds from the nurseries.

The best and gayest bed now is furnished by an annual with small orange-yellow flowers, related to the marigolds, and called *Tagetes tenuifolia* or *pinnata*. I had it also from Germany and from Russia by the name of *signata*. It is one of those few plants which grow as regularly on all sides as to look as if just turned out of a mould. It grows to nearly two feet high, and does best in poor soil, and will transplant easily at any stage of its growth; therefore, it may be sown in the reserve ground any time in April, to be transplanted into the flower-bed early in June, after a bed of *Clarkia*, or other annual, and comes into bloom about the beginning of July, and is the last to yield to the frost. Every one who possesses three flower-beds should grow this annual; a good-sized bed may be had of it from three pennyworth of seeds. I never before saw the *Heliotropes* so fine at this late period of the year; they, of all other plants, make the best neutral beds, that is, plants without any decided colour, and which, if placed near others, will neither add to nor mar their effects. *Isotoma axillaris* is all in good bloom. It is the next best neutral colour we have for beds; the tint is neither blue, gray, nor slate colour, but a shade between the three. It seeds freely, and, if sown in March in a slight hot-bed, will flower the same season; but it flowers better from cuttings made in August, as in rich or damp soils seedlings grow too much into leaf. *Chænostoma polyantha* is still in bloom, but is only a trumpery low weed, with flowers not unlike those of the Virginian stock, and it only blooms by fits and starts; one week you would take it to be a gay little thing, and next week you will not see a bloom on a whole bed of it. It makes a variety, however, in the front of a mixed border, where we do not expect to see every plant in bloom at the same time. *Cupheas* are now, and have been since the middle of July, in full blossom, and although they are not very striking for brilliancy, their elegant manner of growth, and the long time they keep in bloom, render them useful in the flower-garden. *Cuphea strigilosa* and *miniata* planted in equal quantities, and edged with *C. platycentra*, is the most effective way of using them, but each of them would form a nice bed. Of all the plants I know, *C. strigilosa* is the best to plant near bees. A bed of it is alive from morning to night with several species of bees and with wasps, working so industriously as to leave no time for quarrelling—a good example, which ought to be followed by writers on gardening and other matters. The *Dahlias* are now splendid, the fancy ones particularly. Since they have done growing, the stripes, and spots, and shades, are better defined than earlier in the season. This class ought certainly to be grown in lighter and poorer soil than the old tribe. The very dwarf ones among them will also form beautiful flower-beds if planted in circles or rows of one sort or colour, and so that the next blends with it in colour. Mr. W. Savage (p. 64) wishes to hear my opinion on leaving these dahlias in the ground during the winter, probably before he saw what I said on the subject in the previous number. I have seen the plan turn out as I stated, but it might answer better on poorer soil, or every alternate season, and so do away with renewing the soil for them so often. At any rate, one thing I am sure of, and that is, that the readers of these pages will agree with me in wishing to hear more of his experiments, and those of others like him who think for themselves. *Sanvitalia procumbens* is generally as late as the tagetes, but the heavy rains at the beginning of the month finished it before its time. Daisy-shaped flowers, like this sanvitalia, are always more injured by rains than others. The sanvitalia is as useful as the tagetes, and, like it, is always in neat trim. It is also yellow, with a dark centre to the flower, and rises to a foot or so, and may be treated in all respects like the tagetes. *Saponaria calabrica* is always a lovely thing, a great favourite with the ladies, who say "it looks so much like lace-work;" it also lasts till the end of October, and, visit it when you will, you shall never find a leaf or flower of it out of place, but a perfect model of symmetry in all its parts; and the whole surface is so studded with little starry pink flowers, that you can hardly see the leaves. It is an annual, and rises about eighteen inches high, looks best in circular beds not more than four feet across. It should be sown on a warm sunny border about the middle of March, and will transplant without a murmur any time before the May annuals are over; and if I had to make a choice bed for a bride, this is the very plant I would make use of.

There is another annual now in full trim, not so gay as those already mentioned, but one of the most useful things a gardener can lay his hands on, as it will transplant any day throughout the season without flagging a leaf; and a bed in full blossom may be made up with it while the family are at breakfast. It is a *Dwarf yellow single marigold*, raised a few years since on the continent; and another recommendation of it is that it does not emit that disagreeable scent peculiar to the common marigolds. It barely reaches a foot high, and they call it *fragrans*, or sweet-scented—an absurd name; but as they say a good horse is never of a bad colour, we may put up with silly names for useful plants; but the worst of it is the difficulty of asking for it at the seed shops; the book name of all the marigolds is Tagetes, and this one is *Tagetes fragrans*; but I have known three blunders made last season about the name, therefore I would advise that the "dwarf scentless marigold or fragrans" should be asked for. *Zauchsneria Californica* looks as if it would flower on till Christmas. It is one of the most useful new bedding plants we have had for years, and yet it is not so gay as I expected it would turn out. If the leaves of it were dark green it would form a splendid mass, but they are somewhat grayish—a bad tint to set off any shade of red. *Plumbago Larpentæ* is now on a par with the last, but has only been in good bloom since the beginning of October, when it ceased growing. Poor soil on a dry bottom, and old plants of it, will make this a very different thing from what some wise heads have in their haste anticipated. Mr. Page, gardener to Lady Harland, in this neighbourhood, called here for the first time as I was taking these notes, and he was astonished to see our principal bed of it so beautifully in bloom, and as he is fresh from the "London boards," as they say of other clever people, I thought this a good compliment; but of course the poor soil had done it all, and next time it shall be poorer still. *Ageratum mexicanum* is another plant that is now as gay as ever, but it does not arrange well in any systematic combination of colours, and yet is too bright for a neutral bed, being a kind of blackish gray. It does better as a broad band enclosing a mass of white or scarlet in a circular bed, but best of all by itself at a distance from the walks, in some recess where it is backed by the dark green foliage of shrubs, and for that kind of effect at a distance from the eye we have none to equal it. These are the principal miscellaneous plants that have continued so late in bloom.

Petunias, verbenas, calceolarias, and geraniumns of sorts, will furnish matter for a separate letter, as their numbers are almost endless, and as I never had the greater part of them so fine as they were this autumn, I can hardly trust myself to make a beginning upon them, for fear that I should take up too much room and make the subject tiresome to the reader. Of the *Calceolarias*, I shall only say that Mr. Fish has hit upon the very best of the whole family, *the Kentish Hero*, for a bed, the colour being a reddish brown. It is just on the verge of neutrality, but with two other shades rising into red orange, and with the clear yellows, will form one of the most splendid shaded yellow beds that can be formed. It only propagates freely in the spring, not but that it will root from a few pieces at the bottom of the plant in the autumn, but it would be downright extravagance to meddle with it then, as from every autumnal cutting, if left on, the plant will make ten in March, if the plant is put into a gentle forcing at the beginning of February.

Speaking of shaded beds, I may as well say that this style of planting single flower beds is becoming more fashionable every season, and in some few instances the shading system may be adopted with marked effect in a group of beds nigh to each other; but it is apart from the great body of the flower garden, where a bed or a small group of three beds would come in to heighten the effect of some other object, that this style can be carried out to most advantage. Flower garden plants have become so numerous in varieties, that it was found impossible to find room where to plant even the best varieties, and this gave rise to a system that is very effective in a few instances, which is to plant at least three shades of the same colour to answer for one bed, and among the *verbenas* as many as five tints, or shades, of one colour may be put into one bed, and make it richer than any one of the five put by itself; but the sorts that will thus harmonise cannot very well be learned from books, because in different soils and situations the plants grow very differently as to height and strength; but to have the best effect, the plants should be so uniform in all their parts as to appear to be one kind, and that producing the various tints which makes the bed so much admired. Shading is different from this, and it is among the varieties of the scarlet geranium that it can be easiest pointed out. Of them we have dark scarlet, orange scarlet, a shade between scarlet and pink (*compactum* and *judi*), then rose, peach, salmon, lilac, French white, and white. Yes, a white variety of the horse-shoe as old as the hills, but it is not much to boast of. Now, a shaded circular bed is formed out of such tints in the way ladies work Berlin wool, or a border along-side of a walk planted with a row of each tint, from the white to the dark scarlet, and the reverse.

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

REPOTTING PLANTS FROM THE CLUMP OR BORDER FOR SETTING IN THE GREENHOUSE OR WINDOW.—In no department of gardening have greater changes been effected, within these fifteen years, than in the mode of decorating and furnishing the flower-garden Plants that formerly were kept as single, or duplicate miserable specimens, cramped up in pots, duly set in house or pit during winter, and then placed to rusticate in some shady corner during the summer, presenting occasionally a few scattered flowers as a reward to the cultivator, have been transferred to the open clump or border, in numbers beyond all calculation, and there flourish with a luxuriance, and bloom with a profuseness, never previously witnessed when grown in pots for windows and conservatories. It is said that "evils never come singly;" let us rejoice that the same may be predicated of good, as one improvement effected soon paves the way for another. The turning out of geraniums, calceolarias, and heliotropes, &c., not only greatly improved the flower-garden, but the changed aspect which the plants presented gave rise to that combination of observation, reflection, and experiment, which jointly issued in a greatly-improved system of pot cultivation. The cheapness with which many other plants may be procured has brought them within the reach of many, who otherwise must have been content (without envy, for that is the product of little-mindedness) to look at and admire them in the gardens of others. Only let the love of flowers become much more extended, and that cheapness in money value will soon be in proportion to the greatness of the demand. Talk of —nay, what is better, commence—teaching tropical orchid-growing to the *many*, and can there be any reason why these hardier plants should not be brought within the reach of the working millions? In speaking on this subject with a nurseryman the other day, who has great conveniences for rearing them, he emphatically stated that could a *great demand be secured*, they might be sent out, without ever being potted, but still nice little plants, at the rate of from a penny to twopence apiece! Of course, such plants would require more nursing than those raised at home, but nicely would they suit those who practice floriculture more from deference to the tastes and opinions of others than from any personal enthusiasm; and serviceable, too, they would be to many of our cottagers and amateurs who may have had misfortunes with their favourites during the winter. But, convinced as we are of the benefits and the practicability of cheapness were the sale only great, we would still encourage our readers to try and preserve some of their best old plants that they may have planted out in the open ground, not only because their love for the pursuit will thus be increased, and their practical skill advanced, but also because such plants are often associated with times and circumstances, with hopes and disappointments, with joys and sorrows; combined with reminiscences of the graceful in beauty, and the manly, noble in character, around which it is often beneficial for memory to muse and linger.

"Well, now, what am I to do with such plants as I wish to preserve even at this late period?" says a sprightly companion, not long since, at my elbow; "I took up a few some time ago, according to Mr. Beaton's instructions, to whom we are all so much indebted, and I think I shall at least be a little more fortunate than Mr. Savage has been with *your* system of fumigating; and I would have taken up more, but they looked so nice and beautiful where they were, and even now full of bud and bloom, as they are in the very end of October, I would not touch them, only I know that frost is coming; and then there are those pretty scarlet geraniums, from which I have neglected to take even a cutting, though I should like to rival Harry Moore next summer; and there is that beautiful yellow calceolaria, given to me by sister Jane; those pretty, sweet, cherry-pie heliotropes, the gift of cousin Dick; and those fine plants of the Victoria and nosegay fancy geraniums, presented by ——— —you will find out some of these days—all of which, and many more, I should wish to preserve, and in such a state that they might enliven my windows, or my little greenhouse, during winter and spring." Judging that this is not a solitary case, we will endeavour to do something to solve the difficulty. We will not even tantalise you by stating that you would have acted wisely to have reared some cuttings of your favourites in August and September, as a dozen of most of them might have been preserved all the winter in a six-inch pot, and would have made fine plants early next season, if you could have found the room to pot them off singly; for we have felt ourselves that it went a little against the *grain* when we could only receive a little instruction by being previously well lectured upon our shortcomings and deficiencies. But we shall allude to your plants out of doors—which we hope are as healthy as ours still are—as the only quarter from whence you can hope to preserve your stock, and get some assistance for enlivening the greenhouse during winter.

Leaving the scarlet geraniums for the present, we shall describe the proper treatment for all others—and especially of those which make root fibres plentifully—under two different circumstances, such as where there is nothing but window and greenhouse, and secondly, when, in addition to these, there is a frame or pot.

In the first place, then, it is of importance at this season of the year, when wet generally prevails, to choose dry weather for taking up your plants, as when the soil is wet large lumps are apt to fall from the ball, and take the roots along with them, while your success will depend upon the number of fibres you save. When great quantities are taken up, they are generally wheeled in barrow-loads to the potting shed; but in some cases, where a limited number are operated upon, and especially in the case of fine specimens, success, as respects each of which, is a matter of importance, we would recommend taking the necessary light friable soil, and the intended pots well drained, to the plants; then lifting them carefully, by easing them all round with a spade, picking away any loose earth carefully, so as not to injure the roots, and yet lessen the size of the ball; and placing the ball in a pot large enough for it.* Do not jam together any fibres and roots outside of the ball, but arrange them nicely in layers among the fresh soil. Water well to settle the earth, and fill the roots with moisture. Set the plants in a rather shady place; prevent evaporation from the foliage in bright or dry weather by slight shading, and slight sprinklings of water over the foliage by the syringe, not setting them fully exposed in window or greenhouse until the root action has been again restored. By such means you may save your plants; but you must not lose heart if in many cases you are forced to cut off many or most of the flowers, if on others a portion of the leaves should fall, and in some the plants should bid you good-bye altogether.

In the second place, if you have a spare frame or pit, you may not only save your plants but the foliage, and the bloom and flower buds besides, if you only take the same trouble with the plants as we have recommended where no such conveniences exist. We say the same trouble, as it is best to err on the safe side, though there is no necessity for being so very careful about the roots, as the plants will soon be put in a position to make fresh ones. The secret of your success here will depend not so much upon your ability to check evaporation from the leaves, by shading, and syringing, and keeping the plants close, as from having it in your power to plunge the pots in a mild bottom heat, and thus encourage the protrusion of fresh root-feeders to take the place of those that have unavoidably been snapped in raising the plants out of the ground. But mind, we do not wish you to treat the plants as if they were tropical gentlemen; if you do, you will run the risk of having them casting their leaves and throwing up spindly, instead of sturdy, shoots. We recommend the roots to be placed in a temperature of from 70° to 80°, for a certain time, for a definite purpose, but the heads of the plants must be kept cool during the whole period, by having a circulation of air among them night and day in mild weather. In a very sunny day, when you are forced to shade and syringe, still have the air on. As soon as the plants will stand the sun, with a slight sprinkle from the syringe, let the shading be dispensed with, and roots will sooner be formed. In the course of a fortnight or three weeks, if all has gone well, abundance of fresh roots will be found, which you can see by turning a plant out of its pot. They must not, however, even then be transferred at once to the dry shelf of a window or greenhouse, but the pots should be lifted by degrees out of the medium in which they are plunged, and be set for a few days previously on the surface of the bed. By such means we have taken up many and large plants in the end of October and the early part of November, that scarcely ever feel their moving, but there must be no carelessness or inattention to the *minutiæ* of the affair. This simple matter of bottom-heat, when righly applied and understood, will be seen to constitute the *philosophy* for many gardening operations, as respects hardy as well as tender plants.

But, then, how obtain it? Is there not a great trouble in getting fermenting matter, and turning it and sweetening it weeks beforehand? Oh, no; for all such matters we make very short work of it. You have got a cucumber or melon box, empty now, that was set upon a bed of dung—nothing better; while off the soil it will be useful for many purposes. Take out an opening a foot in depth of the decayed dung, place in the opening as much of fresh dung from the stable, or, what is better, a little more of the sweepings of grass and leaves from the lawn; turn the bed thus from end to end, keeping the old manure at the top, and it will answer admirably. Without the old bed, a layer of grass, and then a layer of fresh leaves, would answer just as well, and better if blended together, and a layer of rotten dung, earth, or coal-ashes, put on the surface for plunging in. For these temporary purposes, nothing beats green grass; it heats immediately, and then the heat is easily modified and retained by blending and covering with other substances, the object of the latter being to keep down everything like steam. Even where there is no lawn, it must be a small garden indeed that could not furnish materials for such a bed in weeds, leaves, bean and pea haulm, and prunings. Shrubby calceolarias, and other hardy things, where no such conveniences exist, may be taken up with as much earth as will adhere to them, and set in dry soil in any place where they can have a fair portion of light and be safe from much frost; but then, of course, they could only be used for planting out again, and, therefore, do not come under our department.

SCARLET GERANIUMS.—Of these I can add nothing to what has been said about keeping them in garrets and hay-lofts, farther than that, if I could find room and light to set a few six-inch pots, each of which would hold a dozen of rooted cuttings, I would not trouble myself with taking many up out of the borders. They are in a very different state from those grown in pots or boxes during the summer, which may be kept in such places with the greatest ease. In the one case, the wood is soft and succulent, and the roots are ruptured and broken; in the other, the stem is comparatively hard and well-ripened, and the roots are unmutilated. To approach Harry Moore next season, from plants still growing in the open ground, you must lose no time in setting your plants into something like a similar position to his now, and that, we believe, you can only accomplish by giving them bottom-heat, as we have advised for other things. Fine single specimens may be potted unmutilated, but, for all the smaller ones, the stems may be reduced, cutting back to where it is somewhat firm, and then, where new roots are formed, you may remove them to their quarters for the winter, just where they can have a little light, and be preserved from severe frost. When once the buds begin to break in spring, there will be roots ready to support them, and thus they will answer well for pots or boxes. R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

CISTERN.—In our last we mentioned this useful auxiliary; it is almost indispensable. The one in the orchid house here is formed with slate one inch thick. Mr. Beck, of Isleworth, puts them up in a capital style. The one here has been up for seven years, and has never leaked at all. The great use is the heating the water for syringing and watering purposes. Another use, and an important one too, is for dipping the blocks with the plants on them; also to dip the *Stanhopeas, Gongoras* and other plants in baskets. When those plants begin to grow in the spring they require a good steeping, and the cistern offers a proper place for that purpose. Two or three hours will not be too much to steep them. The peat during the time of rest becomes dry and hard, and requires this wetting to soften it, especially if the plants are to be shifted into new baskets.

As orchids require frequent syringing, sometimes twice or thrice a day, we have made use of pots—garden pots, in fact, without holes. These are placed round the house near the hot water pipes, at a small distance, about six or nine feet apart. Our readers that are in the habit of syringing will immediately perceive the great saving of time and labour by having these pots so handy. Instead of having the water to carry in garden watering-pans, these pots being kept constantly full of warm water are always ready. Having found great benefit and convenience from this arrangement we seriously recommend its adoption, not only to every orchid grower, but also to the cultivators of plants generally. Plant-houses of every description ought to have a number of them placed in convenient places, both for syringing and watering. In walking round the houses the operator observes a plant requiring water: the watering pots are in their proper place: there is no water near; the plant is passed by until the usual time of watering, when it receives, probably, only the usual quantity; the ball inside continues dry, the plant languishes, becomes diseased and dies. This is the history of the causes of death to many a fine heath and other well rooted plants, and though orchids, owing to their peculiar conformation, would not thus be killed, yet they suffer much from the privation of water when they are growing. If pots of water are placed as we have mentioned, the manager, on observing a plant drooping, would instantly take it and dip it into one of them, and thus at once refresh it.

SYRINGES.—These are necessary implements, especially for the orchid cultivator. The best we know are those manufactured by Reid. The cost of a complete one, with three roses of different degrees of fineness, is 21s. The coarsest rose may be used when the plants require the most moisture, that is, during the growing months. The finest rose is to syringe the plants on blocks only during the rest of the year. The manner of using syringes requires some notice. The water should not be forced out with great force, like a heavy shower driven by a strong wind, but should fall upon the plants gently, something like dew, or more like the shower often called "a Scotch mist." This mode will effectually wet the logs, and keep the plants clean, and their leaves bright and healthy. We have alluded to syringing the plants on blocks in winter. This is necessary, because from the increased application of artificial heat to keep out the cold, the logs dry quickly, however moist the atmosphere may be, and the roots and the pseudo bulbs belonging to the small plants will shrink too much if left without syringing for so many weeks. As a general rule, let them be syringed gently with the finest syringe early every morning when the sun is likely to shine. This moisture will sustain them during the day, and prevent the too great evaporation from the leaves of the plants.

SHADING.—We slightly mentioned this in describing the aspect of the houses. We will now enter more fully upon the subject, as we consider it of great importance. Mr. Bateman, in his splendid work on the Orchideæ of Mexico, gives this as a rule, "let the plants have all the light possible, but do not let the sun in spring and summer shine upon them." Taking it, then, for granted that they must be shaded, we next must consider what kind of shade is the best for them. We use a kind of canvass called "bunting." It is thin and open in the mesh, yet just close enough to prevent the rays of the sun striking through the glass, and injuring the flowers and leaves. We shall try to describe how it is applied. First, a pole about two inches in diameter, of the length of the house, or rather longer, is made of deal, and quite round. At one end a kind of wheel is fixed, of larger diameter than the pole (about one-third). On each side of this wheel a round board is nailed, projecting beyond it about three inches. These boards are about three-quarters of an inch thick, and are bevelled off from the inside. When this is done, it forms a groove. This is intended to receive the cord, it being nailed to the wheel. The canvass is then nailed to the long pole, it having first been sown together of the size of the house. The pole, with the canvass attached to it, is then laid upon the house, a flat piece of wood 2½ inches wide, and a quarter of an inch thick, is nailed to the highest point of the house, and the canvass is tightly stretched and nailed to the flat piece of wood, using some narrow woollen lists stretched along it previouly to driving in the tacks. This prevents, in a great measure, the canvass from tearing off with the winds. Then taking hold of the cord now wrapped round the wheel and pulling at it, the wheel turns round, and, of course, the pole also; the canvass wraps round it, and, at last, is rolled up at the top; the cord is then fastened to a long kind of button, and there remains till shade is required. The cord is then unfolded, and the pole let gradually down to the bottom, where some pieces of wood stop it from going off the houses, or tearing away the canvass from the top. This is a simple, useful, and efficient mode of shading, and is used here, at Pine-apple-place, to shade all the houses that require it. The only objection we can allow to it is, that it soon wears out, it lasting only two, or, at most, three years. It, however, may be made to last longer, by having weather boards fixed on the top of the house to receive the canvass when rolled up under it, thus sheltering it from the rain, which is the great cause of its decay. Care must be taken when it is rolled up that it is perfectly dry. With this moderate care, the shade, or blind, will last much longer. During the dark short days of winter, when the sun has not power to injure the plants, the blind may be with great propriety stored away in some dry shed or room till the days lengthen, and the sunshine becomes dangerous to the well-being of the plants. There are one or two other necessary things to notice, but we must defer them to a future opportunity.

Calendar for November.—There is but little of actual work required during the current month. Some orchids that *will* grow must be potted. Should any baskets be quite rotted, let them be renewed, but give no water unless the plants are growing, when they may have a very moderate quantity given them. We shall describe the mode of making baskets shortly. *Watering.*—Very little, if any, water is required during this dull season. Syringe the blocks as directed last month on the mornings of sunny days, wetting the pipes at the same time to raise a gentle steam. On wet dull days withhold both. Keep the *heat* very moderate; 60° by day and 55° by night will be quite sufficient.

FLORISTS' FLOWERS.

Tulips.—Between this day and the middle of the month every bulb of these flowers ought, without fail, to be planted. If our instructions have been attended to the bed or beds will be in fine order to receive them. Bring out the bulbs some fine morning and set to work planting in good earnest. Some make holes with a blunt dibble, having a mark made upon it to show the proper depth to which the bulb ought to be put in. Our practice, however, is different. We judge that the dibble saddens the earth under the bulb too much, therefore we stretch a line and draw a drill, three inches deep, all the length of the bed, doing this as much as possible without treading upon the bed. Then choose the tallest growers and plant this first row with them, pressing the bulbs down gently to keep them firm and upright in their places. Unless you have larger numbers than you have room for let them be at least eight inches apart, but whatever number you may have do not plant them nearer than six inches to each other; if you do your flowers will not be so fine, nor the bulbs so large for next season's blooming. When the first row are all in their places cover them up with a fine-toothed rake, pressing the earth pretty firmly around and upon the bulbs; then remove the lines eight inches from the centre row, and place the next kinds as to height in it; cover it up, and then the bulbs will stand nine inches apart from row to row. Remove the line to eight inches on the other side, and plant them in it in a similar manner; plant the other two rows in the same way, and then level all with the rake, and the operation is complete. The bed will thus contain five rows, which are quite sufficient, and will allow the spectator to examine every flower comfortably without treading upon the bed, a trespass to be avoided at all times during the growth of the flowers. The bed may now be allowed to receive every gentle shower, but heavy long continued rains must be carefully guarded against. Have your coverings ready to be applied at all times when heavy showers may be likely to fall, and shelter accordingly.

Pinks may now be planted out, if not already done, in the place where they are to bloom. This plant is more hardy than most other florists' flowers, and, therefore, requires but little protection; still it is desirable to shelter it a little from very severe frosts. A sprinkling of common fern will answer this purpose well. The bed ought to be enriched, but not too much, with vegetable mould; too rich a bed will cause the colours to run, therefore be moderate with stimulating manures. Fasten the plants well by pressing the soil firmly about each plant; this will prevent the frost from drawing the plant out of the soil. Each pink plant ought to stand five or six inches from each other, and fully six inches between the rows; they will then grow moderately and flower finely, with large flowers and bright colours.

T. Appleby.

THE KITCHEN-GARDEN.

Jerusalem Artichoke.—We have before stated that the tubers of this excellent vegetable are better left in the ground until required for use; for, unlike most other root vegetables, the frost, unless very severe, has no injurious effect upon the tubers. Our system is, as soon as the stalks are ripe, to cut them down on some dry day to within about ten inches of the surface of the ground; and if not wanted at the time for thatching temporary sheds, or any other purpose, we tie them up in neat bundles and store them away until wanted, as they are sure to be, for protection of some kind during the winter. We then wheel over the artichoke beds all the clearings from the asparagus and sea-kale plantations, all the decayed leaves from the brocoli and cabbage, as well as all other refuse leaves, garden clearings, and rubbish, so that the whole surface of the ground is covered to the depth of six or eight inches, and the tops of the cut artichoke stalks only just allowed to be showing through. The tubers should be trenched out as required, and the whole of the rubbish by degrees well trenched in, leaving the ground in two foot ridges; and all the middling sized tubers should at once be planted again whole, at the distance of two feet apart between every alternate ridge. We always plant the same ground, without delay, on the system we are now recommending, and obtain an immense crop, forking over the ridges pretty often on the dry frosty mornings in spring, and laying down the ground rough and light about the end of March or the beginning of April. Pigs and cows are fond of the small refuse tubers, as well as poultry of all kinds, from the pigeon to the pea-fowl and pheasant, all of which like the Jerusalem artichoke, either cooked or uncooked. If the ground cannot be spared for the artichoke to remain as recommended until required for use, then the tubers may as soon as well ripened be all taken up, and either be ridged out of doors or packed in sand; but care must be taken to keep them safe from mice and rats, as these vermin also are exceedingly fond of them. *Globe artichokes*, if not already dressed, should be attended to as directed in a former Number.

Potatoes.—Those that have been stored away in quantities should occasionally be examined to see whether the old enemy is, or is not, making any havoc amongst them. We are this year blessed with a crop of the finest quality, free from disease, or, at all events, so slightly affected as to be almost imperceptible, and we attribute our success mainly to the system which we adopt of planting all our principal crops in the autumn. November is our favourite season, if the soil is in good condition and the weather favourable; and if the ground is not in a tolerable state, we then apply a moderate quantity of manure, trenching the ground into two-feet ridges, and allowing these to remain for a short time. Those potatoes which were selected for replanting at taking-up time, of a moderate size and well-ripened, are planted whole, placing them one foot apart between each ridge. The ridges are then laid down over the tubers with the fork, as lightly and roughly as possible, and thus they are allowed to remain all the winter. By the time that the drying frosty March winds set in, the soil becomes in a well-pulverized and very good condition, and a few good hoeings and scarifyings will then be found beneficial. If the earth is forked down lightly over the tubers to the depth of four or five inches, it will be quite sufficient to protect them from any frost that may prevail.

Sea-kale.—Those who have not done so should, without delay, attend to the directions already given for cultivating this vegetable. Clear away all the leaves and weeds, and give a good dusting with slacked lime. Fork up the beds carefully, and top-dress them. Those who wish for early cuttings may now cover up a small quantity, say 20 or 30 plants. First examine the crowns with the hand, and find out their extent, so as to know where to place the pots over them; then give the ground about them a thorough good dusting with quick-lime, and put the pot over immediately, seeing that it fits close at the bottom, so that the steam cannot get in from the fermenting materials which are to cover the pots. Stable-dung that has been turned over three or four times to sweeten may be used for this purpose, but leaves are very much better; and a good manager has always a corner where he collects all his leaves for this and other purposes. Give the pots a good covering of these leaves to the thickness of a foot or 18 inches all round and over them, pressing the leaves as close and as snug as can be done, leaving the work in a ridge-shaped form; after which a few barrowfuls of long stable-dung, or old thatch, or any other such material, may be put over the whole, which will tend to warmth, and prevent the wind from blowing the leaves away; altogether this should give a temperature of about 55°. A fine day should always be chosen for this work, and never leave off the job until it is finished.

The beds that are not required to be put into action just now, should have an extra shovelful of the good compost, before recommended, put over each crown to protect them from the two extremes, frost and sunshine. Much fertile matter will go down to the roots from these top-dressings. Many gardeners take up a quantity of sea-kale roots, either for potting, to be brought forward in the pinery or other similar places, or to be planted on a gentle hot-bed. This is giving themselves much trouble for very little profit We never saw the gardener that could show a good dish of sea-kale grown in this way equal to that obtained by the way of forcing above described.

Routine Work.—Keep the *spinach* and all similar crops free from decayed leaves, which, at this season, will accumulate, and form, if neglected, a sure refuge for slugs and snails. Keep up a due attention to *hoeing* and *surface-stirring*, an operation which will greatly encourage the growth of the late-sown *turnips* at this season, and if the soil in which they stand be poor, some guano, or guano and dry ashes mixed, or any kind of charred dust, will be serviceable if sown amongst the crop. The framing of store *lettuce* and *endive* should be attended to on dry days. Place them close to the glass in turf or other temporary-made pits. Keep a sharp look out for the mildew, and for the depredations of the slug amongst the young store *lettuce*, *carrots*, *radishes*, &c., and attend to the previous directions concerning these. Provide for successions of *asparagus*, *rhubarb*, and *sea-kale* roots for forcing, and give tepid-water to those already breaking their buds. James Barnes & W.

MISCELLANEOUS INFORMATION.

OUR VILLAGE WALKS.

(No. 5.)

I frequently pass a cottage, on the wall of which hangs richly, but carelessly, a neglected vine. It is in a village street, and there is nothing picturesque or pleasing in the cottage or its situation; yet a vine, see it wherever we may, at once attracts the eye, and addresses itself to the heart. Whether we see it spreading and climbing in its rich eastern exuberance, or as the stunted bush of the western vineyards; whether it darkens the hothouse with its luscious drapery, or hangs with sour and tasteless clusters round the cottage window—the vine wings our thoughts with lightning speed to the Land of Promise, and the One glorious "Plant of Renown." "I am the Vine, ye are the branches," has sanctified for ever this beautiful tree in the Christian's eyes and heart; and when he prunes away the unprolific shoot, and sees it lie withering on the ground, what a solemn voice makes itself heard in his inmost soul!

A golden vine, with its wide-spreading graceful boughs laden with fruit, adorned the interior of the porch of that Temple sanctified by the presence of the living God—a striking type of Him, and of those who abide in Him. How loudly does the vine repeat to us, "As the branch cannot bear fruit of itself, except it abide in the vine, no more can ye, except ye abide in me."

The vine is, as we all know, a native of the east, and was very early spoken of in the sacred writings. It was first brought into England about the tenth year of the Christian era, and thus becomes extremely interesting to us as having first taken root in our soil so soon after the blessed event from which all Christian nations count their time. The vine has been more generally and successfully cultivated here than it is now. In our climate, however, it has never attained any size; but the Roman authors speak of vines as growing to a surprising size, and bearing bunches of enormous weight. Columella mentions one tree which bore two thousand bunches of grapes in one season; and in the reign of Augustus bunches are described as being two cubits, that is an English yard, in length. Statues and columns in some of the temples of that idolatrous nation were formed from the trunks of vines; and the great doors of the cathedral of Ravenna are constructed of vine planks, some of which are 12 feet long and 15 inches wide. This gives us a high idea of the fertility of Italy in bygone days, and of the skill exerted in the cultivation of these trees; for in the east, where the soil and climate needed no help, the vine attained no useful size, for we find it spoken of in scripture as "meet for no work;" but by cultivation it seems capable of taking its place in some countries among the useful kinds of wood.

Even in our hot-houses, as regards the fruit, the vine sometimes surprises us. In the year 1781, there grew in the vinery at Welbeck, the seat of the Duke of Portland, a bunch of grapes that weighed 19 pounds and a half; and when sent as a present to Lord Rockingham at Wentworth House, a distance of 20 miles, it was carried "suspended on a staff" between two men, who were relieved by others at stated distances. What a picture of the produce of the promised land, the grapes of Eshcol! In the year 1821, a bunch of grapes, weighing 15 pounds, was grown at Eljord Hall, in Staffordshire; and the celebrated tree at Hampton Court Palace has, in one season, borne two thousand two hundred bunches, each averaging a pound, thus rivalling the vine of Columella.

Vineyards were very common in England in days of yore. The neighbourhood of Winchester was so famous for them that it is thought to have taken its name from this peculiarity. Why should not its chalky downs be turned into "fruitful hills" at this present time? Wine of excellent quality is known to have been made in England when the vine was extensively grown here; and the vineyard of Arundel Castle, in Sussex, afforded wine that excelled very much of the Burgundy then imported into England, and this so late as the middle of the last century. Many parts of London still retain the name of "Vine-street" and "Vineyard;" and East Smithfield was once a vineyard, held by four successive constables of the Tower, but this was very far back in history. Near Berkeley, in Gloucestershire, there is a place where vine tendrils spring up among the grass, distinctly marking the site of a long neglected vineyard. Canterbury was also famous for its vines; a large space of ground near Rochester still retains the name of "The Vine;" and the Isle of Ely was called by the Normans, the "Isle of Vines." In the time of Richard the 2nd, the little park at Windsor was a vineyard, and in very many other places this interesting tree abounded in England's earlier days. Gloucestershire particularly excelled in the number and richness of its vineyards. Northamptonshire, Leicestershire, and Somersetshire, all abounded in vines, and the neighbourhood of London possessed them too in abundance. Bradley says poor soils might be very much improved by planting them as vineyards. They would make a good return for the care and culture bestowed on them; and as wine is now nearly four times the price it was in his day, how profitable and how useful the management of vineyards might again become! Would it not be worth while to turn the attention of the "amateur," if not the cottage gardener, to the cultivation of the vine for home consumption? We might obtain an agreeable beverage at a very trifling expense, compared with the heating, and often inferior, wines, for which such high prices are given, and necessary comforts are sometimes sacrificed to obtain. I have often tasted what is now called "grape wine," and it is very pleasant when well and carefully made. The clever and managing wife of a farmer in my neighbourhood makes excellent home-made wines. The parsnip, orange, and currant, with the well-known ginger and raisin wines, usefully stock the cellar, and afford the means of displaying real hospitality, when it is difficult and really blameable to obtain more highly esteemed wines. The great art required in wine making is to put in all the sugar, to boil and skim it well, and to attend to the fermentation afterwards. On this account, the eye of the mistress *must* superintend the process. The prunings of the vine, leaves, shoots, and tendrils, make a very excellent vinegar, when allowed to pass through two fermentations. The cottager may sometimes be able to procure prunings that otherwise would be thrown away in large graperies, and vinegar is so useful, and so expensive an article to buy, that made thus cheaply it would be a profit to his own family, and sometimes a help to his friends and neighbours. In cases of fever, and other illnesses, vinegar is of great benefit. Verjuice is made from the juice pressed from the unripe fruit, and is extremely good as a fomentation for sprains or weak joints.

I should like to see a vine trained and tended on every cottage wall, in every garden in the land, because it is so full of scriptural interest, and reminds us of so many things we sinfully forget. Let Christians, let Britons, remember the vineyard planted "by the right hand" of God, "the branch that He made so strong for Himself," and let us tremble. We, too, have been planted "in a very fruitful hill," yet the sin of Israel, and the judgments of the Lord, warn us of our responsibilities and perils. The "farm," the "merchandise," may be looked after, while God's messages are "made light of." Beautiful as is our free and highly favoured land, cherished and happy as are our palace and our cottage homes, yet England's "hedge" and "wall" are not her fleet or army; "except the Lord keep the city, the watchman waketh but in vain." Let us remember, that the Magna Charta of our liberty, the stout sea-wall of England's glory, and the roof-tree of her highest and humblest homes, is, and must *ever be*, "the Sword of the Spirit, which is the Word of God."

SELECT LIST OF ENGLISH CROCUSES.

SPRING CROCUSES.

Yellows.—Crocus reticularis, Dutch Cloth of Gold; do. speciosus English Cloth of Gold; do. sulphureus albidus, straw colour.

Purples.—Vernus, purple; puniceus, very dark purple with white stripes; Sabini, very fine; grandis, rosy purple, larger: purpurescens, very fine, dark purple, cupped; maculosus, large light blue, with rosy purple stripes; plumosus, white, with purple feather, fine; stylosus, very showy purple; inflatus, fine feathered, light purple; tulipaceus, beautiful light large purple.

Lilacs.—Lilacinus præcox, pale lilac, good; maculosus, pale blue, handsome.

Variegated and Spotted.—Vernus pictus, fine feathered lilac, very handsome; falcatus, very handsome; unguis major, lilac, striped with white, fine; leucorhynchus, light, striped with purple.

Grey Striped.—Vernus gloriana, grey striped, finely feathered; glorianella, beautiful feathered lilac, with purple bottom; variegatus, beautiful feathered lilac; lincellus, white, with rosy purple bottom, striped very distinct.

White Striped.—Vernus spectabilis, splendid white, with purple stripe at bottom; undulatus, white, with lilac stripe; obsoletus, small white, with purple bottom.

Pure Whites.—Albus major, pure white; ditto minor, ditto.

Late-flowering Purple.—Vernus delectus, beautiful feathered purple; tardiflorus, purple striped, finely feathered.

Dark Striped.—Versicolor elegans, fine dark striped grey; vittatus, small white, outer petals feathered with rosy purple.

Lilac Ground.—Versicolor lineatus, lilac striped.

White Ground.—Versicolor pulchellus, small feathered lilac, pretty; do. propinquus, white feathered; do. affinis, white, grey stripes; do. pallidus, white, outer petals shaded with rosy purple.

AUTUMN CROCUSES.

Crocus serotinus, blue, flowers at latter end of October and beginning of November; Latinus, saffron blue; nudicaule, blue, blooms (at present) without foliage.

Of the Dutch spring varieties, *David Rizzio* is a splendid purple, and *Queen Victoria* an equally beautiful white.

Then they have from 50 to 100 varieties of seedlings, which are better than those enumerated above, more attention having been bestowed on the colour and shape of the flowers, which are botanical species, and were grown by the late Mr. Sabine, of the Horticultural Society, who gave a vast deal of attention to this class of plants, and had carpets or beds of them formed in the gardens. When I say carpets, I mean that the beds were laid out in patterns. The same varieties were likewise grown by the late Mr. Haworth, of Queen Elms, together with others. Mr. Sabine's collection contained about 124 specimens; Mr. Haworth's not so many. Besides the above there are several English varieties that are not enumerated, which have almost gone out of cultivation on account of the fineness and size of roots, combined with the cheapness that the Dutch people grow them. There are likewise several autumn plants that used to be called crocus. For instance: the yellow autumn crocus, now called *Amaryllis lutea*, in full bloom at present. The different varieties of colchicums were formerly all termed autumn crocuses. The Dutch varieties of the crocus, and the species from Mr. Haworth's and Mr. Sabine's collections, are now selling by me at 7s. 6d. per 100.—D. Hairs, *Seedsman, St. Martin's lane.*

In addition to the preceding Mr. Hairs has also furnished us with the following Dutch varieties, which we have now growing in our garden.

BLUE.
Aimanthe.
Belle aimable.
Bleu Celeste.
Bleu Merveille.
Buonaparte.
Brama.
Captain Cook.
Dagaraad.
Dorquichot.
Eau de Wiskey.
Grand Blu.
Grand Vidette.
Homer.
Imperiales.
Keiser Titus.
Laurens Koster.
L'Illustre.
Lord Alaide.
Lord Nelson.
Longilus.
Newton.
Norma.
Ovidius.
Penelope.
Perignon.
Perponchier.
Pourpre Fameuse.
Rochus.
Roi de Holland.
Roi de Navarre.
Serilium.
Sir Robert Peel.
Sorodina.
Virasius.

WHITE.
Belle Helena.
Belle Romaine.
Carolina.
Criterion.
Glanana.
Grand Blue Royale.
Grand Vainqueur.
Grootvorst.
Helarius.
Henriette.
Honerable.
Juliana.
Krom Prins der Nederlander.
La Belle Romaine.
La Neige.
La Purite.
L'estimable.
Leandelle.
Lucanius.
Madame Beauty.
Mascarius.
Mardus.
Miranda.
Mungo Park.
Murat.
Nanette.
Orion.
Phidias.
Phocas.
Plutarchus.
Pure Blanche.
Regina.
Reine du Monde.
Rosatta.
Stakes Juffer.
Sophia.
Tantalus.
Victory.
Vulcain.
Waterloo.
Witte Standard.

STRIPED.
Amasus.
Argentis.
Blomfield.
Bonaventura.
Capitatusa.
Carolianus.
Crispina.
Euphrosina.
Hermina.
Imperiales.
La Valliere.
Lilaceus.
Lord Wellington.
Louvain.
Ma plus aimable.
Monica.
Orleans.
Othello.
Paarlboot.
Paronia.
Philidare.
Reine des Roses.
Romula.
Sara.
Staatsraad.

Ed. C. G.

EXTRACTS FROM CORRESPONDENCE.

Refrigerating Storehouses.—Should you deem the annexed extract from a letter received a fortnight ago, from a friend in America, sufficiently interesting for a place in your very useful periodical, it is at your service, and, I would add, that your own remarks, a few weeks since, on the preservation of fruits, lead me to suppose that any improvement on the present method of storing them would be acceptable; and, although this plan can never, on account of the mildness of our winters, and consequent difficulty of procuring a sufficient supply of ice, be made fully available in this country, yet, by showing what has been done elsewhere, it is not unreasonable to hope that, in favourable situations, some approach may be made to the American refrigerating storehouse, and I shall be happy, in a future letter, to give some practical suggestions on the subject, if deemed worth insertion:—"Detroit, Michigan, Aug. 4th, 1849.—The refrigerating storehouse of Messrs. Story and Shaw, on Lecoutelua-street, is well worth visiting. It is a stone building, forty feet by twenty, with a deposit of ice twelve feet thick over-head, resting on an iron floor, which is supported by heavy under-columns running through the building. The sides of the house are protected from the ingress of heat by a non-conducting substance, which also protects the ice from above. Twelve feet is deemed sufficient to last a whole season without replenishing. The ice being put in the upper part of the house, the lower part, when the fruit is deposited, is (on the principle that cold air sinks,) kept in an almost freezing state—38°. Six above the freezing point is about the average temperature through the season. There is never a variation of more than 3°. Fruit deposited there, partially rotted, is arrested in its decaying process for weeks, and even months, and we have now before us lemons which were stored there in the early part of May, the stems of which are as fresh, apparently, as the day in which they were gathered. And Mr. Shaw, one of the proprietors, showed us some figs which were brought in the same vessel as plump and as sound as when they were first put in the drawers. They will remain so long after figs kept in the usual way have disappeared from the market. The most delicate kinds of fruit, such as pine-apples, peaches, pears, &c., are found there at the most unfriendly season for them, in a state of perfect soundness. The wonder is that there is not more of these storehouses in this city, ****. They can be built in connexion with an icehouse, and at a trifling additional expense. Farmers would find them exceedingly convenient for the preservation of fresh meat, fruits, butter, and, indeed, many articles belonging to the farm."—J. B. S., *Oakham.*

TO CORRESPONDENTS.

Endive Blanching (*T. P. F.*)—If your endive is full grown, fold the leaves together, and tie them as you would those of a cos lettuce; take up the plants and place them, roots and all, in their natural position as thick as they will stand in a box, and cover them over with dry sand. The plants must be quite dry when taken up; and no two plants must touch each other, but have sand between them.

Himalayah Pumpkin (*Q. R. S.*)—Your description agrees with that of this pumpkin. The seed probably was misplaced.

Grapes Shanking (*M. X. A Constant Subscriber.*)—We will write editorially upon your case next week. Your grapes are the finest we ever saw grown in a greenhouse. Will you oblige us with two or three cuttings from your vine?

Moving Asparagus and Sea Kale (*C. H.*)—Although your asparagus beds are ten years old, yet we should endeavour to move the plants from them, doing so next April. We should begin at one end of the bed, digging a trench three feet deep, and as many wide, and then scratch away the earth from about the roots of the plants, injuring them as little as possible, keeping them covered with moist straw until planted, and planting as fast as taken up in your new beds previously prepared. Your *sea-kale* plants had better be moved at once.

Budding Roses (*G. B.*)—You say that "the whole of the wood *will* sliver off from the bark of the bud's shield, and out of the eye;" and undoubtedly it will if you persist in "tearing it out" with your "finger and thumb." Use the sharp fine point of your budding knife. and cut the wood out in small pieces. Your *vine leaves* are very much scorched "by the rays of the sun through bad glass." The *insect* from the potatoes and bulbs is one of the *millipedes*, but too much crushed for us to determine the species.

Light Soil (*X. Y.*)—Your *roses* "get weaker and smaller;" your *white lilies* "spindle and die;" and your *apple trees* "increase very little." All these facts demonstrate that your soil is too light and dry. You must improve its staple by giving it heavy manurings of mixed chalk, clay, and manure. In early spring open the ground over the roots of your apple and rose trees, and at three inches from the surface cover them with long mulchy stable dung, and then return the earth over this. Watering in very dry weather will be very beneficial, and the mulch will render its application less frequently needful.

Gladioli still Green (*Ibid*).—Leave these and the *Pavonia tigridia* until the frost has cut down their leaves; then take their bulbs up, dry gradually, and store in a dry place until February, when they may be replanted. Turn your *Kalmia latifolia* out of its pot into the border. It is quite hardy.

Dorking Fowls (*Joseph Richardson, Thorne, Yorkshire*).—Our correspondent will be obliged by being informed where he can obtain these fowls.

Cauliflowers (*A. Z.*).—We give directions from time to time as necessary for cultivating these. *Salt and lime* is a very good dressing for ground on which cabbages are grown, but they require rich decomposing manure besides.

Ferns (*W. L. Watson*).—You may dry these between blotting-paper like any other botanical specimens, but this is not within our province.

Carpenter's Physiological Botany (*G.*).—You can have this separate from the other volumes.

Heating a Pit (*J. B., Belper*).—The mode of heating you propose is just one of the modifications of *Polmaise*, and may succeed provided your house is not large, and you can attend to it yourself. Mr. Fish has used the same principle as an auxiliary to other modes of heating; and some of his acquaintances have succeeded by such means to their highest expectations; but others have entirely failed, and not having had the opportunity to try it ourselves we should not like to advise you definitely upon the subject. Of course, you will have dampers for the chimney, and we should propose having the fire-place wider, that the fuel might rest on the side of the bars. Our opinion, however, is, that if not at the first, yet a small hot-water apparatus would be cheapest in the end. We saw a nice little boiler, a short time since, cast with four flanges for heating two small houses, which, at a country foundry, cost only a guinea, and two or three inch iron pipes are cheap enough. To avoid casting knees and bends these parts might all consist of lead; and, upon the whole, though not desirous of throwing cold water upon your plan, we should advise you to take an estimate of both methods before committing yourself to either.

Hawthorn Berries (*H. H. H.*).—The haws which you picked up in the Derby Arboretum will grow if perfectly ripened,—mix them with a little sand in a flower-pot saucer, and leave them exposed to the wintry weather until next February; then sow them in drills, six inches apart, in a light soil, and bury them an inch below the surface.

Sweepings of Furnace-flues (*J. D., Renfrewshire*).—Sweepings, such as the sample sent, consisting of much sand, a little powdered chalk, and less soot, will do excellently for rendering your stiff loam more friable. It might be used for the same purpose to the soil for carnations and verbenas.

Pæony Tubers (*Henry, a young gardener*).—These tubers, which have no crown buds, will not grow at all. Why divide so close? An old stool can be separated into many plants.

Sweet-water Grape in Pots (*Ibid*).—It is very doubtful whether your plants of this grape will succeed in pots, but you can try. The sweet-water is the worst of grapes for pot culture; the fruit sets so badly.

Seedling Ixias (*G. G*).—These have leaves, you say, two or three inches high. They are safe enough; keep them in the box where they are growing until they finish their growth next May. Your *Ranunculus seed* may be sown next February.

Spent Bark and Stable Manure (*A. T. B.*).—This mixture is good for currants and gooseberries; also, at the bottom of beds for the hyacinth and narcissus; but the roots of the anemone and ranunculus being fine, might be injured by it. As a general top dressing, lay the spent tan about an inch thick over your flower borders, and do not dig it in until the winter is over. Phloxes will bear it three inches deep.

Lophospermum Cuttings (*Ibid*).—You need not repot these, which are rooted, until next March. Your *Cineraria seedlings* still in their first pots will soon require others a size larger. We do not know such a tree as *Juniperus lambertiana*. Perhaps you mean *Cupressus lambertiana*, which is now found to be the same as *C. macrocarpa*. If you do, it *is* quite hardy, and one of the handsomest of evergreens.

Heating a Small Greenhouse (*A constant Reader*).—The cheapest way for you, as "a labouring man," to keep the frost out of your small greenhouse, would be to have four three-gallon stone bottles filled with boiling water, corked, and put into your greenhouse at night and whenever necessary.

Forest Tree Seeds (*J. M H., Gorey*).—In an answer to another correspondent to-day, you will find how to treat your haws. Acorns, beech-mast, and ash-keys, require no particular treatment. They only require to be sown now in rows; the acorns and beech-mast about two inches deep, and the ash-keys one inch deep. They may be sown either where they are to remain or in nursery beds. *Charcoal* is only useful to greenhouse plants used as drainage instead of crocks, and a few pieces mixed up with the soil. It should be used in lumps about the size of a nutmeg.

Pear Tree Over-vigorous (*A. A. Z.*).—Your tree produces luxuriant shoots, and is still green with a few blossoms, when the leaves of all others have fallen. Your pear case appears to be a case of inveterate grossness. The more you get "gardening jobbers" to close prune it, the more wood and the less fruit you will obtain. Let us advise you first to search for tap roots, which cut entirely away. Next, apply a compost on the surface, which will coax and increase surface-roots, and, as to pruning, we would thin out clean all the very gross shoots of the past season, and tie down the remaining ones all over the tree, without shortening them. You must give up cropping for six feet on each side the tree for a while.

Bees (*E. F.*).—Unless the place your bees are now in be very damp, let them remain where they are till the middle of February. Had you to remove them three or four miles it might be done now with safety, but removing them only fifty yards will, at all times, be attended with some loss, perhaps, less in February than at the present time. (*Q. R. S.*).—You say that the bees you put into your "five-glass cottage hive" would not use the glasses. In all probability the swarm was a weak one, or a late one; see well to it that they have at least eighteen pounds of honey in store at this time, if not make them up to that weight immediately by feeding. If you can, give them honey in the combs at the top of the hive, if not use the feeder figured at 136, vol. 1, of the Cottage Gardener. When the stock is made to possess eighteen pounds of honey, shut up the openings at top, and at the end of April put on the five-glasses, each containing a small piece of *white* comb, and a supply of honey will be almost certain. (*J. W .G.*).—Your bees ought to weigh eighteen pounds, and the cottage hive is three pounds more, making in all twenty-one pounds. If they do not weigh so much they will do you no good. *A cast* may always be known by attaching itself to the *side* of the hive immediately upon being hived, which *a swarm* very seldom does, but to the *centre*.

Error.—At p. 51, col. 2, line 11 from the bottom, *propolis* is said to be *bee-bread*: this was not Mr. Payne's mistake. They are very different substances. Bee-bread seems to be the pollen of flowers, but propolis is a resinous substance well described by the Rev. C. A. A. Lloyd at p. 241 of our first volume.

Caponizing (*M. A., Maidstone*).—This is a barbarous custom, and its details unsuited for our columns. If you persist in requiring information, you will find it in Richardson's book on "The Domestic Fowl," price one shilling.

Distinguishing Classes of Roses (*F. L.*).—You ask, "How can the classes of roses be distinguished from each other by their wood, foliage, habit, &c.?" and we wish that we could give you this information. At present, the classification of roses is in many respects arbitrary; and the classes are so needlessly numerous, as to defy the most intelligent florists and rose-growers to give definite characteristics of each. We hope, before long, to see the classes reduced to less than half their present number, and those which are retained marked by easily understood distinctive characters.

Tan for Gardening Purposes (*R. H. B.*).—Whenever tan is used as a manure it should be in a decomposed state. We do not recommend *any* manure to be put upon the soil about to be planted with potatoes. We think that charred tan would do as well as charred peat to mix with pig dung, &c.

Laying Out Flower-bed (*S. E. M., Haverfordwest*).—People differ so widely about the shapes and laying out of flower-beds that we have long since resolved never to give advice on the subject. For ourselves, we prefer circular or oval beds, and any with sharp points and angles we particularly dislike, but we have no right to dictate on matters of taste to others. To make the best of a few small flower-beds they ought now to be planted with spring bulbs, and about the beginning of next April to be planted with the best kinds of autumn-sown annuals, between the bulbs, to flower in May, and then to be planted with spring-sown annuals that will transplant in June, or try the more fashionable half hardy plants. Follow Mr. Beaton's notes on this subject for more advice.

Names of Plants (*J. P. B. F.*).—Your flower is a *Helianthus*, and we believe it to be *H. angustifolius*, or Narrow-leaved sunflower. (*C. G. R.*)—The small tree, of which you sent us a leaf and two seed vessels, is the *Staphylea pinnata*, or Bladder nut. It is a native of England, and in some countries its nuts are strung as beads by Roman Catholics to form their rosaries. The kernels, though bitter, are eaten in some countries.

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WEEKLY CALENDAR.

M D	W D	NOVEMBER 15—21, 1849.	Weather near London in 1848.			Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
15	Th	Machutus. Apricot leafless.	T. 43—18.	N.	Fine.	21 a. 7	9 a. 4	5 a. 0	1	15 11	319
16	F	Teal arrives.	T. 45—38.	W.	Fine.	22	8	5 35	2	15 0	320
17	S	Hugh, Bp. of Lincoln. Gadwell comes.	T. 49—38.	S.W.	Rain.	24	6	6 16	3	14 48	321
18	Sun	24 S. aft. Trin. Silk-tail Chatterer	T. 50—34.	S.W.	Rain.	26	5	7 1	4	14 35	322
19	M	Fieldfare arrives. [comes.	T. 50—24.	N.W.	Fine.	27	4	7 52	5	14 22	323
20	Tu	Edmund, King and Martyr. [Society.	T. 55—40.	S.W.	Rain.	29	3	8 48	6	14 8	324
21	W	Princess Royal b. 1840. Linnean	T. 54—33.	S.W.	Rain.	31	2	9 49	7	13 53	325

St. Machutus, Mahutas, or Malo, was born in the vale of Llan-Carvon, in Glamorganshire; but passing into France, and becoming an ecclesiastic, he finally attained to one of its bishoprics, the cathedral town of which was then called Aleth. This name was subsequently changed to St. Malo, in honour of the deceased bishop. He died there A.D. 630. There is no doubt of his being a good and able man, but we know of no valid reason for devoting to him a day of celebration in the reformed calendar.

St. Hugh was a native of Gratianopolis, in Burgundy, being born there A.D. 1140. When nineteen, he became an inmate of the Chartreuse, near Grenoble, and within ten years was raised to be its grand procurator. From that office he retired at the invitation of our king Henry II., who appointed him to the priorship of a fraternity of Carthusian monks at Witham, in Somersetshire. In 1186 he was elevated to the bishopric of Lincoln. He died in 1200, and was interred in the cathedral of his see, which he had lived to rebuild from its foundation.

Edmund was king of the East Angles—his territories including our modern Norfolk, Suffolk, and part of Cambridgeshire—in the year 870, at which time occurred one of the most destructive invasions of the Danes. He was too mild and unwarlike for the age in which he held the sceptre; and when the invaders approached his residence at Hoxne, on the banks of the river Waverney, he unwisely parleyed with them without any preparation to sustain his negociation with the sword. They resented his invectives—imprisoned, scourged, pierced with their arrows, and then beheaded him. The Danish chieftain himself, Ingwar, was the executioner. Edmund was a sincere Christian, and his grateful ecclesiastics obtained his canonization. Eventually his remains were buried at Bredicsworth, in Suffolk, and its name was thence changed to St. Edmunds-bury, or Bury St. Edmunds.

Meteorology of the Week.—During the last twenty-two years the average highest temperature has been 49.2°, and the average lowest 36.3°. The highest temperature observed on any one of these days during the same period was on the 21st, in 1833, when the quicksilver in the thermometer rose to 59°, and the lowest temperature observed was on the 16th in 1841, when it sank to 15°, being 17° below the freezing point of water. In the twenty-two years during seventy-nine of the days rain occurred, and seventy-five were fine.

Natural Phenomena Indicative of Weather.—If, during fine weather, there is a *chilliness* felt greater than ought to be experienced from the temperature indicated by the thermometer, we may be sure that rain or snow is approaching. That chilliness arises from the increased dampness of the air. Without devoting space, which we cannot spare, to a particular description of the various kinds of *clouds*, we will only observe that, whatever may be their form, if they increase fast and to a great extent, especially if it be towards the evening, they portend that rain is at hand. If they form a dappled grey covering over the sky, and the wind is from the north, the weather will be fair. If they form rapidly and again dissolve away, though the weather may be variable for a short time yet it will speedily be fine. Large grey clouds, with smaller rounded clouds of a slightly paler grey, or almost white, before them, indicate the speedy arrival of a heavy downfal. Much red always forbodes wind and rain, especially if this colour prevails in the morning; but if it occurs in the evening after a grey morning, it often foretells that the next day will be fine. This has become a rural verse, for we often hear that

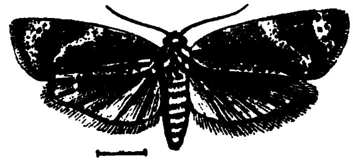
"An evening red and a morning grey,
Will start the traveller on his way;
But an evening grey and a morning red,
Will bring down rain on the pilgrim's head."

A greenish tint near the horizon often indicates a continuance of wet weather; and the purple hues which so often beautify the evening haze in autumn, usually are a sign that fine weather will continue. The colours of the sky are usually more bright and varied in autumn than at other seasons, because then there is more vapour in the air near the earth; and it is to the reflection of the rays of light from the particles of water composing that vapour that those colours owe their origin.

RANGE OF BAROMETER—RAIN IN INCHES.

Nov.		1841.	1842.	1843.	1844.	1845.	1946.	1847.	1848.
15	B.	29.479	29.631	30.222	30.078	29.918	30.162	30.220	30.435
		29.307	29.614	30.020	30.025	29.719	30.122	30.201	30.421
	R.	0.4	0.32	0.07	—	0.06	—	—	—
16	B.	29.589	29.896	30.007	30.237	29.624	30.128	30.197	30.316
		29.431	29.717	29.979	30.191	29.263	30.065	30.157	30.235
	R.	—	0.02	—	—	0.11	—	0.09	—
17	B.	29.700	30.451	29.914	30.296	29.362	29.902	30.217	30.073
		29.414	30.182	29.591	30.280	29.283	29.848	30.061	29.808
	R.	0.12	—	0.11	—	0.17	0.02	0.01	0.04
18	B.	29.666	30.532	29.569	30.258	29.439	29.828	30.372	29.729
		29.316	30.419	29.505	30.178	29.155	29.487	30.316	29.513
	R.	0.12	—	0.01	—	0.03	0.06	—	0.03
19	B.	20.474	30.100	29.797	30.177	29.123	29.810	30.369	30.050
		29.266	29.732	29.649	30.143	29.077	29.708	30.269	29.793
	R.	0.24	0.87	0.10	—	0.09	—	—	—
20	B.	29 375	29.778	29.712	30.204	29.428	29.434	30.215	29.874
		29.195	29.717	29.542	30.111	29.143	29.295	29.444	29.581
	R.	0.18	—	—	—	0.33	0.09	—	0.09
21	B.	29.382	29.785	29.600	30.304	29.485	29.631	29.836	29.662
		29.291	29.677	29.500	30.291	29.382	29.530	29.593	29.523
	R.	0.30	0.32	0.02	0.02	0.36	0.37	0.01	0.03

Insects.—At p. 56 of our second volume Mr. Errington warns all cultivators of wall fruit, as soon as they observe, in May, one of the leaves rolled up, to destroy the little caterpillar within the roll, and to watch for others, because the eggs of the moth from which that caterpillar came continue to hatch for several weeks. That moth is the Narrow-winged Red Bar, *Pædisca angustiorana* of some naturalists, and the *Ditula* and *Tortrix angustiorana* of others. These caterpillars appear during May and June: they are about half an inch long, are pale yellowish green, and with the head brownish yellow. A few bristles are scattered over the body. It is a very active caterpillar, wriggling about in most varied contortions when disturbed, crawling with equal facility backwards and forwards, and letting itself down by a single thread from its mouth. It passes into the state of a brown shining chrysalis, rolled up in the same leaves, and from this the moth comes forth in July. The moth is very small, not longer than the line below our drawing of the insect magnified. The fore-wings are reddish brown, in bands of various degrees of darkness. The hind-wings are dusky. It deposits its eggs, probably, upon the branches, where they remain all the winter, and the caterpillars are most frequently found upon the apricot.



A few days since we received a bunch of very fine grapes, with a letter, from which the following is an extract:—

"This sample of grapes grew on a vine in my greenhouse, which I understand is a Syrian vine.* However this be, it produces abundantly, and, as you may judge by the specimen, the fruit is not bad, but, doubtless, from some mismanagement, which your experience may enable me to correct hereafter, most of the bunches rot off in the middle even before they ripen. I thought at first that this might be caused by the fruit being allowed to remain too thick in the bunches, and therefore thinned them to the extent of at least one half; nevertheless the same result continued, which makes me now attribute it either to mismanagement on my part, as before stated, or to the ants with which we are pestered, who may possibly fracture the skin of the grapes, and thus the moisture exuding may corrode the adjoining fruit.* The greenhouse in which the vine grows is a lean-to on the south side of the house, divided into two compartments by a glass partition, one of which, being the passage leading to the front door and constantly open, except at night time and in very stormy weather, has a continual draught through it; the other is closed everywhere except in front, which has a set of swinging sashes to let in the air as required. In the inner compartment there were three other vines of the sweetwater kind. Now, as the Syrian vine, from the extraordinary size and handsome appearance of the fruit, was an especial favourite, it struck me that the produce might be very materially improved both in size and quality by carrying a limb of it into the inner and warmer compartment. For the purpose, therefore, of this experiment, I turned out the adjoining vine, and conducted one of the branches from the outer division to fill its place. This was done the year before last. Last year, therefore, you may conceive my mortification when I found almost all the fruit "fog off" in the middle, as I have described. This year, however, has proved more favourable for the trial, although, for some reason or other, the fruit has not ripened so early by at least six weeks as it usually does; and singular to say, the produce of that portion of the vine exposed to the draught has proved better flavoured and ripened earlier than that in the warmer situation, although in both cases it is much inferior to what it was before the alteration of position; for although those you have herewith are of a tolerable size, they are not so large by at least one-fourth as heretofore; in short, they used to look more like damsons than grapes. Now, as I should much like to preserve the fruit, I shall be obliged by some suggestion how to prevent the rotting of the bunches, and also to know whether it would not be judicious to replace the vine in its original position.—M. X."

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* The Syrian grape is white. Those sent were Black Hamburghs, we think.

This is a very decided case of *shanking*, as the gardeners call that disease of the grape-vine, which is a gangrene and complete withering away of the footstalks of the berries, or of the central footstalk of the bunch. This, we have always thought, arises from the temperature of the soil being too much below that in which the branches are vegetating; and, consequently, the supply of sap to the grapes is too much diminished, and the parts which thus fail of support immediately begin to decay. This consequence of a diminished supply of sap is always apparent either in the leaves, flower, or fruit. The disease, like every other putrefaction, does not advance rapidly unless there be much moisture in the atmosphere. Shanking we never knew to appear in the grape if the roots of the vine were within the house, which confirms our view; for when the roots are so situated they vegetate in a temperature varying, as in a state of nature, according to that in which the branches are bearing their leaves and fruit. But when the roots are outside they must always be considerably colder and more sluggish than they ought to be in proportion to the warmth within, while the other parts of the vine are hastened forward.

The result of the experiment made by our correspondent still further sustains our opinion. The bunches shanked when grown in a cold greenhouse, but they shanked much more on that branch introduced into a warm one. In the latter the demand for sap is even faster than in the colder structure.

In this, and in all similar cases, we would open the ground over the roots of the vine, and cut away those which strike deep into the soil, and by making the surface of the border rather more rich, and covering the surface with warm fermenting dung early in the spring, we would encourage the production of roots nearer the surface. It is important in grape growing, and indeed in all cultivation, to get the roots into action before the buds begin to swell. This can only be done economically, in such cases as the present, by keeping the roots near the surface. Fermenting dung will then set them in motion in early spring, and the warmth of the summer sun will afterwards keep them sufficiently active. We recommend the branch to be withdrawn from the warmer house, and the cooler portion to have its temperature in early spring kept as low as convenient, that the root-action may be able to keep pace with, if not to precede, the development of the buds. As the autumn comes on, with its chilly nights, and whilst the bunches are ripening, we should renew the coverings with long dung; removing it during sunny days.

THE FRUIT-GARDEN.

Planting Fruit-trees.—Having despatched for a little while our business with *indoor* fruits as concerns the amateur, we turn now most willingly to outdoor matters, which concern at once equally the cottager and the amateur. Now, as these two classes do not by any means comprise the whole of the readers of this little periodical, and though we sometimes shoot too high for the one and too low for the other, we do hope so to aim that all extreme points, as well as the intermediate grades, may one time or other be hit by the remarks we offer.

The dull month of November reminds us that perspiration, or, as our learned men term it, transpiration, is at its lowest ebb, or nearly so; and that such is the period of which we take advantage, as being most favourable to transplanting processes.

We cannot now stay to speak of kinds; we have before done so, and will again return to the subject: for the present it will be well to speak of general arrangements for planting, and of the accessories necessary to a successful carrying out of such objects.

Drainage.—All soils are not stagnant; some, however, are too moist for the successful culture of fruit-trees, and here commences the fundamental principle of all good fruit-growing. Here it is, we consider with the agriculturist, good gardening and good farming at once recognise the same general basis to all ulterior proceedings. This leads us to the consideration of the varied staple of various localities. Some soils are too loose, too sandy; others too adhesive. Some are of a boggy or peaty complexion, and some of the character of upland moss soil. Again, how much subsoils vary; here we have stubborn clays or marls, dry sands, wet or gouty sands, and wet or dry gravels; besides which, beneath some soils there is a horizontal stratum of stone or other imperishable material, of which that termed in some parts of the country " fox bench" is one of the worst. When these things are duly considered, it will become evident that the planter's business is one that requires some thought; some nice weighing of matters, and a cautious mode of procedure under all circumstances. To say little about profit and loss—which indeed are the main considerations with most people after all—how great the disappointment to thousands annually on being informed that their pet collection of fruit-trees, established some four or five years previously, and about which such sanguine anticipations were indulged in, can never be expected to succeed, through errors in the constitution of the soil or other evils. That such, however, is the case frequently, is tolerably manifest both from facts which we yearly witness, and as evidenced by the character of the queries addressed to The Cottage Gardener. Let us, therefore, once for all, persuade our readers to think well before they plant a new garden. Any one certainly may plant a tree; not every one, however, can with certainty predict the result which must follow, through a thorough practical knowledge of the character of the soil and subsoil.

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* Ants never injure fruit. They visit the vine in search of insects, or to feed on the grapes *after* they have become diseased.

In concerting plans preparatory to planting fruit-trees, a due regard should be had to the economical bearing of the subject, for success does not always imply great expense. In a great many cases a few barrowsful of soil formed into a " station" (according to plans we have formerly laid down, and will again recur to shortly) will accomplish the end in view equally as well as though as many cart-loads of compost had been introduced. And here we cannot but remember the vast preparation and enormous expense in making what were termed " borders" in our younger days. It was no uncommon thing to see a fine little pasture field so robbed of its treasures that its even appearance (to say nothing of loss in actual produce) was completely broken up. A " border " had to be made; this of course was considered an all-important affair. Sad, however, to relate, nothing less than a four feet excavation could be considered orthodox, for it must be admitted that our prescriptive men of those days were somewhat notorious for being rather imperative as to depth, and we fear we may honestly add richness of compost.

Well, then, a border was formed which was capable of producing many generations of cauliflowers, lettuce, and celery, with scarcely any signs of exhaustion: it would also, in addition, produce abundance of enormous twigs on the finely labelled trees. Fine crops of fruit, however, the main object sought, did not always reward the constructor of deep and rich borders. The trees would grow with magical rapidity, making what was termed " clean " wood; not a spot or a wrinkle to be found, and covering a vast space of walling in a couple or three years. By-and-by came the spurring back to produce fruit-spurs, and then it might soon be discovered that fruit-spurs cannot be created by the pruner's knife: such may command " breast-wood," but not blossom-buds. However, in these cases there appeared no alternative, and so, with the most determined resolution, the hero of the deep and rich border would persist, year after year, in spurring back, and paying the most scrupulous attention to training the shoots neat and straight.

We have been led into these remarks by the necessity which appears to us to exist for warning the young or inexperienced horticulurist of the present day against being led into such unnecessary expenses. The character of the times we live in will, indeed, of itself, soon pare down all works of supererogation: Men now want a reason for matters of expenditure, and it is an honour to the gardening profession that, from their rapid progression of late, such can in the majority of cases be furnished.

We will shortly advert to the benefits and the economy of forming " platforms " for fruit-trees, in the construction of which but a very moderate amount of fresh or maiden soil will be requisite, as our fundamental object will be to show that in a majority of cases it is merely inorganic matters that are requisite, and these are comparatively inexpensive affairs. In the meantime let every attention be paid to thorough drainage, for although we would improve but limited spots or stations for the trees where ground is of an ungenial character, yet in draining it is better to proceed on a bold plan at once, and thorough drain. Niggardly and patch-work draining is the most expensive draining by far. We have known several cases in our day in which patch-work drains, dictated by a too rigid economy in the first outlay, had to be superseded by a new scheme on a wider foundation. Boggy or peaty soils require the most drainage; it is with much difficulty such soils part with their water in the first instance. As time and culture mellows them, they go on steadily improving, and losing that elasticity, which is a mere consequence of possessing too much organic matter in an undecomposed state. Letting out the water lets in the air, that grand ameliorator and corrector of acidity in soils: all this is as amply shown within the precincts of a flower-pot as in hundreds of acres, to those who can carefully observe, and reason on their observations.

As to the best planting season, we prefer the early autumn months: indeed we are now removing many apple, pear, and plum-trees, of 10 or 12 feet in height, and some 30 feet in circumference, without the least fear or hesitation; depending, as we do, on the period and on the precautions taken. We may shortly give a detail of the exact mode of procedure here practised.

Root Pruning.—At p. 28 we concluded our observations upon this subject as applicable to the *Pear* and *Apple*, and we will now consider the root pruning of our other hardy fruits.

Root Pruning the Plum.—Plums may in general be managed without pruning by a finger-and-thumb stopping, for the gross shoots once pinched in May or June, these trees are not so liable to produce similar ones so late as the peach and nectarine. Young trees, however, in a trained state are apt to produce very strong shoots, and it is well to let them have pretty much their own way for a couple of years, when root pruning may be had recourse to, and this, with finger-and-thumb work during the next summer, will in general cover them with spurs.

Root Pruning the Peach and Nectarine.—Root pruning should not be practised with these after they have once got into a bearing state, even if a season of total barrenness ensues. As before observed, the peach is not a long-lived tree under ordinary circumstances, and is very impatient of a fret when of some age. Indeed, with anything like good management peaches will not want root pruning more than once, and this only in extreme cases. Great care should be taken to leave no bruises on the roots, and we invariably prune to a bunch of fibres, for fear that in cutting a naked portion gangrene might ensue, through a part of the root dying back.

Root Pruning the Cherry.—It is seldom that this process is required with this tree. In the larger, grosser-wooded, and large-leaved section, however, it will be needed, as they are rather unmanageable characters to dwarf. This, we suppose, has led Mr. Rivers to try the Mahaleb as a stock. He is for beginning with the root, and a very proper idea too, but we do not know how far he has succeeded.* The Morellos, the Kentish, and the Dukes, can scarcely ever need it, unless under very bad management; we therefore need say little more about this family.

Root Pruning the Apricot.—Overgrown young trees of the apricot may be root pruned with advantage; the operation should not, however, be carried to an extreme, for, like the peach and nectarine, their power of rallying again is not so great as the apple and the pear.

Having now gone over the principal fruits, we must close the root pruning question for a little while in order to make way for various matters which will soon begin to press. Any peculiar cases which may occur can be answered in the way of queries; and we must here join our friend and coadjutor, Mr. Beaton, in requesting that such be couched in few words: this is the way to get at the pith of the affair. Besides, queries of an ingenious character will hit at principles—not mere rules.

Root-pruning Rule.—It will be asked by some of our amateur friends how far they must cut away from the stems of the apples, pears, peaches, &c. If we could at once answer this question we should feel exceedingly clever, and on the least consideration of the case it will be obvious that the extent of root pruning must be ever dependent on the amount of luxuriance of the tree in question, combined with the extent of its vital powers. We will, however, endeavour to convey an idea. We would throw all our fruit-trees into two classes as to root pruning affairs, and these we would term the luxuriant and the *excessively* luxuriant. Taking it for granted that a tree generally throws out fibres or roots as far as the branches extend, we would say form an ideal circle to that distance. This done, divide such circle into three divisions or subordinate circles. For the first class, then, or "the luxuriant," cut away one-third—of course the outer one; and for the second class, or "excessively luxuriant," cut away at least half of the second circle as well. We now speak with reference to the apple; for the pear a greater amount of severity may be practised on the one hand, and on the other the severity may decline according to the order in which we placed them.

We do not claim any infallibility in such an attempt at precision. We hope the good sense of our readers will teach them to modify such dry rules by making themselves still better acquainted with the laws which govern the vegetable kingdom. R. Errington.

THE FLOWER-GARDEN.

Hardy Autumnal Flowers.—We resume the notes on very late autumnal flower-garden plants. *Sweet alyssum* is just as full and as gay as it was at the beginning of last June, also as highly-scented as at any period during the season. The scent of this old annual is overpowering to many people. Being a clear white flower, and covering its own foliage, it is one of the most accommodating edgings we have—as pure white will associate with almost any other colour. There is a variegated form of this plant which is still richer as an edging, but as it must be kept by cuttings, and have the shelter of a cold frame in hard frosty weather, it cannot be so universally used as the other, which will preserve itself from year to year by self-sown seeds; and if the seedlings are planted in little patches six inches apart, and nine or ten inches from the edge of a bed or border, it is all that is necessary for the whole season, and they will answer very well if planted any time before the end of May. *Neja gracilis* is one of those genteel weeds which we grow in large flower-gardens for some peculiarity or other. It is grown here for its late flowering, and to suit very small beds, for which its neat habit of growth is well suited, and it does not rise above ten or twelve inches high. It is a hardy greenhouse or frame plant, with yellow daisy-looking flowers, from Mexico about twenty years since—strikes freely from cuttings in the spring, and the plants thus raised flower the following autumn. It is very suitable to those who make use of annuals in May, as it will come in time enough after the early annuals are over, and, if certain beds were set apart for particular colours, this should follow the *Sphenogyne speciosa*, the gayest of the low yellow annuals. *Lupinus Hartwegii* is nearly as much in bloom as at any time through the season. It is by far the best of all the lupins for a large bed, but it is not suited for a small one, as it will grow a yard high; it bears the knife, however, and may be kept lower than is natural to it. The flower-spikes ought to be cut off as soon as one-third of the bottom flowers fade. If it is allowed to ripen a pod of seeds the plants will look rubbishy for the rest of the season. The seeds should be sown as early as March, and on a slight hotbed if possible, but it will do on a warm south border, and to be transplanted any time about the end of May.

Salvia fulgens.—These red salvias have been very lazy this season with me, not flowering till late in August; but they have made up for this in October. I never saw them finer than they are now, that is on the last day of October. There are two forms of it, the old green-leaved one and a variegated leaved; the height and flowers are the same in both, but the variegated one makes the best bed. They are only adapted for large beds. The blue *salvia patens* is still as fine as ever; this, also, is only fit for large masses, and the white variety of it is also in good bloom just now. There is no mistake about this being a fine thing, and just such as we wanted for a long time, for we have had nothing good for a tall white bedder. I have only two plants of this white salvia, as, to tell the truth, I have so often burnt my fingers with novelties in this line that I was rather shy about recommending a large batch of it to be brought in last spring, which I now regret, as the plant does not propagate well but in the spring. *Salvia chamædryoides* is also a very useful blue bedder, now in full bloom, and has been all the season; it is all but hardy, and is well suited for small beds and for edging round the salvia patens. In the early part of summer this salvia ought to be pegged down to the ground, as is often done with the S. patens and other plants. *Salvia prunelloides* is another blue one, very dwarf, but only suited for patching a mixed border, and it likes a low, damp, shaded situation; it has been in full bloom here since the end of May.

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* We have some cherries on the Mahaleb from Mr. Rivers. They are dwarf bushes, and bear well.—Ed. C. G.

Of *calceolarias* there are five kinds of yellow ones in good bloom yet, and two reddish brown ones, one of them being the Kentish Hero. *Viscosissima* will do no good on our soil, and is the only calceolaria that does not. Where it answers there is none better for a large bed; what I use instead of it—that is, in large beds—is one called *corymbosa*, and I believe a wild species, or at all events the first or second cross from a wild shrubby one. Those who attended the July exhibitions of the London Horticultural Society would have seen splendid masses of this calceolaria at the Duke of Devonshire's gardens at Chiswick. The next best yellow one to this is the camparatively new one called *amplexicaulis*. Most of the ladies call this the best bedding calceolaria we have. It is, indeed, a most beautiful thing for a bed, and the most sulphur-coloured in the whole family. The secret of its being so much admired, however, is the softness of its foliage, and the close habit of its growth. It is also the poor man's bedding calceolaria, as, if he keeps but one plant of it over the winter, it will furnish him with stock enough to plant a good sized bed in a few weeks in the spring by cuttings, which root as fast as those of the verbenas. There is another one called *kayii*, a dwarf sort, with orange yellow blossoms, a fine thing for a pot and bed. This and corymbosa, with the Kentish Hero, are excellent plants to remove from the flower-beds into pots in October for flowering in the greenhouse or in cool rooms, but heat at this season is very disagreeable to them. Although viscosissima refuses to grow with me here, it is also a good one to pot for the same purpose.

Petunias. — Our stock of these has just done blooming, except three sorts: *Devoniensis*, the best purple one for a large bed, with the eye filled up by the transformation of a couple of the stamens into small petals; *Shrubland rose*, the best of that colour, and with a white eye; and *Latter's large white*, also a very good one for a large bed; but a dwarf white petunia for small beds is still a desideratum. We have given up bedding any petunias but those of very distinct colours; but some of the mottled ones make pretty masses, only they are out of fashion in flower-gardens.

Scarlet Geraniums.—Many of these were just in their prime at the end of the month, but they are so numerous that I cannot notice one half of those we cultivate for various purposes; besides, it is really of very little use to give a selected list of them at any time, because they are much influenced by soil and locality. Those that look splendid in one place may only be third-rate in another situation. There is a dwarf one, called *Tom Thumb*, which is one of the very best in the vicinity of London and other places, but here it is only third-rate. The old *Frogmore scarlet* has had more extended cultivation than any other variety, a proof that it is not so capricious about soil as many of them. It would only look respectable here with one-half the bed of rotten manure, and so with many others; hence the reason why so many gardeners took to raising seedlings of this class; and it has been known to us for years that out of a number of seedlings raised at one place, some of them would do better in that soil than anywhere else. The strong one called *Shrubland scarlet* does better in beds here than I ever saw it elsewhere; but at Sion House, and one or two other places near London, they grow it larger in pots than I have been able to do. Mr. Smith, of Dalston, who rents his nursery-ground of Sir W. Middleton, sent this plant first into the trade by the name of *Smith's Emperor*, or *Superb*, I forget which. One peculiarity of it is, that it will reproduce itself invariably from seeds, except in the texture of the leaf, and that sports into three forms, one of them being a slightly marked horse-shoe. On this slight foundation three other names have lately been reared, so that the old "Shrubland Scarlet" may now be had under five distinct names. I have a great-grandson from it, called *Punch*, and in our soil is the finest of all the thousands that we have tried; and, what is singular enough, it also comes true from seeds; but it is one of the capricious ones, for in many situations it is only third-rate. I once counted 173 flowers in one truss of *Punch*; and 120 is the common run with us Our stock of this one variety is about five thousand plants, and yet it will not answer to be grown on Harry Moor's plan. For this mode of treatment we use Tom Thumb and *Judi*; the latter is a mere trifle as to the size of its truss of flowers, but the trusses are so thickly produced as to hide all the leaves; besides, it is a great favourite with the ladies, owing to its peculiar shade of colour, being what they term "a true geranium colour;" that is, a shade between a scarlet and rose. By this time "Punch and Judi" must be in every county in the three kingdoms, for almost all the visitors to these gardens for the last five years took away cuttings of them. But of all the varieties of geraniums, scarlet or otherwise, the old *Golden Chain* is the most fickle; I can trace it back full sixty years, and although every one who has seen it in a flourishing state would wish to possess it, one can hardly meet with it anywhere. I knew it do remarkably well in one place in the north of Scotland, five and twenty years since. I tried it in vain in the west of England and other places, but here it "grows like a weed." In the London nurseries and gardens it will hardly hold a leaf. I sent it to the Horticultural Society, and to several of the nurserymen long since, to Mr. Appleby's employers among the rest, and I doubt if a score of them could yet be bought in that quarter. It has created more interest here amongst visitors than all the other plants we grow put together, and after all it only produces nine or ten little trumpery scarlet blossoms on a truss. The beauty of the golden variegated leaves is what is so much admired. After the scarlet geraniums, the next best of the tribe for large beds is a light pink one called *The Salmon*. This might be called the poor man's bedder, as it is the easiest of the race to preserve through the winter, will grow well in any soil or situation, and is the easiest of them to manage through the summer. Another recommendation of it is, that it does not seed if left to itself. I have been obliged to discard some good seedlings owing to their bad habit of constantly producing seeds, and that feature is the greatest fault with many of the best sorts in cultivation. I have a fine cross seedling from this Salmon, called *Cherry-cheek*, a great favourite with ladies, but unfortunately it is a shy bloomer, and I can only recommend it for a breeder. The truss is good, the form of the flower is also good, and the colour is novel, and is very much admired. It will come in as the fourth shade in a bed planted on the principle of shading, or say the *White Horse-shoe* first, *Lucia rosea* second, *Lilac nosegay* third, and *Cherry-cheek* fourth. The next shade is that of *Judi*, but unfortunately our Judi is a *dumpy*, and would be overtopped by either the lilac nosegay or cherry-cheek, and *Compactum* is far too red for this row, although it would come in very well in the sixth row, being the next shade to the scarlet, and of them two more shades, the *orange scarlet* and *dark scarlet*, would finish the bed.

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

CHRYSANTHEMUM INDICUM.—The Chinese chrysanthemums have been cultivated for the best part of a century in this country, having been introduced between 1760 and 1770. The generic, or family, name is composed of *chrysos*, gold, and *anthemon*, a flower, as many of the first imported ones were yellow in colour, which is also the case with a considerable number of the hardier types of the genus. Great improvements, however, have been effected since the plentiful introduction of hybridized varieties, though even some of the older kinds are very beautiful, either in the open air or grown against a wall. After being for years comparatively neglected they have for some time been receiving the attention they so richly deserve. As autumn flowers, for herbaceous grounds, shrubberies, walls, and conservatories, they stand unrivalled and alone; and, what is a great commendation, they are so cheap, because so easily propagated, that they come within the reach of every possessor of a garden, however limited his means. I have known individuals who greatly prized certain plants, annually destroying that portion which they did not want for themselves, in order that, if possible, no one else should possess them: their chief enjoyment seeming to consist in their ability to say, "I have got such and such things which you neither have nor can obtain!" With all the benefits resulting from provincial horticultural societies, they have in some cases tended to promote such a narrow-minded, jealous feeling, at variance with that open-hearted and open-handed kind neighbourship which generally distinguishes the *artistes* of the garden. *Here* all such narrow-minded folks must find themselves in a fix; the ease with which our present favourites are to be procured will make the contest, if contest there is to be, consist in superiority of culture, and not in the possession of novelties and rarities. Merely to keep the plants, nothing will require less trouble than chrysanthemums, but nothing will better repay careful attention. In the one case, you may have diminutive flowers sticking at the points of slender, naked shoots; in the other, you will have large flowers upon shoots furnished with luxuriant foliage to the surface of the soil.

At the present time the attending to the plants for the sake of the flowers is the principal thing, as *now* it is too late to rectify errors in their previous culture. If the drainage is all right, and the soil is lumpy and open, they will not only require plenty of water, but they will like it all the better if, after soot, or guano, or cowdung, has been soaked in it, you communicate it to the roots, so sparkling, frothing, and richly amber-coloured, that our good friends, the teetotallers, observing your operations, and mistaking your liquid for triple X ale, would chuckle, and, imagining the day was all their own, pat you kindly on the shoulder, and tell you the *stuff* at any rate was better for plants than for men, in which proposition, whatever be your peculiar views, you will, no doubt, heartily agree.

We have in our time tried almost every method for growing these plants, in beds, in borders, and in pots, for the ornamenting of the greenhouse or window. For the latter purpose, we have taken some of the smaller plants of the previous year's growth, furnished with a short stem free from suckers, as Mr. Beaton recommends for hardy shrubs, cut it down in *March* to the lowest buds, shook the earth from the roots, potted it afresh and successively until it filled a large pot, and made a noble specimen; or we have taken suckers, or, what we rather prefer, cuttings at the same period, and grown them on until they were as good as the other; and then, again, we have put a fresh lot of cuttings in in May, shifted them successively into smaller, and finally into six-inch pots, stopping them repeatedly, so as to make them bushy, but *never* after the beginning of July; and then, to obtain small plants, layered the points of the shoots of those grown in the open air, in small pots, in the beginning of September, filled with light soil; not by tongueing beneath a joint in the usual way, as the shoot is very brittle and apt to break if much bent; nor yet by merely twisting the shoot, as by this process the roots are longer in being emitted; but by putting a sharp-pointed penknife through the centre of the shoot, and moving it upwards or downwards for a couple of inches, and then keeping the two sides separate by the insertion of a chip of wood in the centre of the opening, and then roots will form freely from the slit sides when covered with moist soil. By the first method, plants may be obtained from four to six feet in height; by the second, from eighteen inches to two feet; and by the third, from six inches to a foot. It is customary to turn out the two first lots, as soon as they are struck, into beds prepared for them—much in the same way as Mr. Barnes would advise for pricking out young celery plants, only provided with more depth of soil, —where they are to be grown during the summer, watered, their roots cut, and transferred to pots in the autumn; but, though the system answers very well, I prefer keeping them in pots (if pots can be got) all the time, plunging them during the pot months, but preventing the roots getting out at the bottom, and setting them on a hard bottom full in the sun by the middle of August, to ripen the wood and set the buds, never allowing them to flag for want of water. By having the three sizes of plants you will be enabled to make a more gorgeous display than by propagating all at one time; and by arranging them in groups according to their size and colour the effect will be very striking. This season I have got none but those propagated in May, and though they are well supplied with bud and flower, they will not possess the same massive effect as formerly. I generally use them *now* for filling large vases in a glass corridor, without artificial heat. When well rooted the plants can be taken out of the pots without ever seeming to feel it; a row of small layered plants were placed round the outside, inside of that a row from six-inch pots, the ball squeezed firmly together, and inside of that a large plant from an eight or twelve-inch pot. If there is not room for sinking such a plant, after planting the others in light rich soil we frequently set the pot on the surface, and, when covered with moss, it is concealed by the stems of the plants turned out, and by this means each vase used to exhibit a dense mass of bloom from the base to the summit of the plants, a result that cannot be effected with chrysanthemums by any other means that I am aware of. Those who have not vases may produce a similar effect by turning several small plants into large pots; and one advantage will be that they will save watering to a considerable extent. Taste differs; we prefer filling a vase or pot with one kind.

Those who intend forming a collection cannot do better than place themselves in the hands of one of the respectable nurserymen who grow them largely. If convenient, you would enjoy a treat by choosing yourself when the plants are fully in bloom. As a guide, fix chiefly on those whose outline is circular; petals broad, even, well rounded at the points; centre well elevated, well filled with petals, without showing confusion; disk or centre completely covered, not exposed as in semi-double flowers; but many of the quilled and reflexed varieties, though not agreeing with this description, are extremely beautiful and desirable. For those who cannot choose for themselves, the following list, we think, would meet their approbation:—Adventure, bright yellow; Annie Salter, paler yellow; Argo, yellow; Bride, blush, large; Brunette, bronze; Bijou, white tipped, small but pretty; Campestroni, fine purple; Celestial, blush; Chancellor, shaded white, quilled; David, yellow; Demosthenes, bronze and buff; Defiance, white; Duc de Conigliano, pinkish brown; Elvira, yellowish pink; General Morceaux, dark buff; Gouvain St. Cyr, buff orange; General Laborde, lilac; Harrison's Queen Victoria, pink; Incomparable, buff; Insignis, lilac; Julius Cæsar, dull red; Louis Philippe, pink; Madame Saltier, rosy red; Minerva, quilled, buff, large, and fine; Madame Pompadour, light lilac; Marie Antoinette, salmon and fawn; Orion, creamy white; Perfection, lilac; Phidias, rosy red; Princess Marie, rose, splendid; Queen, earlier than the last, not so good, but fine; Queen of Yellows, fine; Queen of Gipsies, dark copper; Rigollette, salmon buff; Reine des Bacchanals, red and orange; Sappho, red buff; Sultana, dark rose; Salter's Queen Victoria, lilac and white; Temple of Solomon, yellow; Vulcan, dull crimson; Victory, whitish.

Most of the above will also answer admirably for training against palings, and the walls, or window-sides of a cottage; only at this season the flowers should be protected from wet and frost, and in large towns from smoke. We have never seen these flowers to better advantage than in London and its vicinity, as they seem to be careless of the smoky nuisance; but in a foggy day the flowers will be all tinged with soot unless protected. To secure fine specimens against walls, the suckers from the old stools should be well thinned out, the shoots neatly trained, and the roots well supplied with rotten manure and water. If the object is to obtain splendid clusters of flowers at the ends of the shoots, all the side shoots should be nipped out from the axils of the leaves, until within a foot of the top or point. When a mass of flower, rather than fine individual blossoms, was the object, we have stopped the shoots by nipping out the points in the beginning of June, and the second formed leader again in July, by which means the side shoots were encouraged to bloom nearly over the plant, but of course the flowers were much smaller than when produced at the points only.

For herbaceous beds and shrubberies the flowers must only be encouraged at the points of the shoots; the more rotten manure the plants receive, and the better the shoots are trained, the better will they bear flowers: unless in warm places the hardier varieties only answer best for this purpose. For grouping in flower-beds, to be planted after the summer flowers have gone, the plants should be propagated in April, and transferred to prepared beds in the reserve garden, there to grow until wanted, from whence they may be removed, with good balls, in a dwarf state. For this purpose, as well as for the open ground generally, the following will answer well, even in rather cold, exposed siuations:—Lucidum, white; Surprise, white; Princess Marie, rosy; Queen, rose: Paper White, Tasselled Yellow, Golden Yellow, Golden Lotus, Superb Clustered Yellow, Park's Small Yellow, Tasselled White, Early Crimson, Splendid Light Purple, Starry Purple, Curled Lilac, &c. Unless, however, in old fashioned gardens, or where the grouping of chrysanthemums is practised, you will find some difficulty in obtaining many of the latter, as they are all considered out of date, though very beautiful. Thinking of again grouping the hardier kinds out of doors, I found it would be very difficult to get them, and, for the present, gave it up. R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

THERE are, as we observed last week, two or three other necessary things to complete the furniture of the orchid house. We shall describe them as we promised this week, and then the tyro will be ready for our second head, viz., the various ways of cultivating the orchids.

POTS.—Various are the shapes and sizes of pots used for orchids. Some are nearly cylindrical, with holes not only at the bottom, but also all round the sides; others have long slits up the sides. Some we have seen, for hanging up with *Stanhopeas*, or *Aerides*, made half globular, and pierced with holes, to allow the flower stems of Stanhopeas, and the roots of the others, to penetrate through. All these forms will answer pretty well where there are no cockroaches or woodlice to creep in at the holes, and secrete themselves during the day; but, on that account, we strongly object to all such fantastical pots. The kind we use and prefer may be described as a shallow, wide pot, the proportions of which are as two, three, and five: that is, two inches wide at the bottom, three inches deep, and five inches wide at the top, all inside measure. Larger pots to be in the same proportions. Small ones need only have one hole at the bottom, but it should be larger than those generally made. For the two-inch-wide pots at the bottom, the hole ought to be three-quarters of an inch in diameter, the great object being to allow the escape of water quickly. Larger pots must have three holes, each of the same diameter. Hard-burnt ones must be avoided for these plants, as well as for any other. The reason why we prefer these wide, shallow pots is, that the roots of orchids are, generally speaking, either on the surface or very near it; besides, a larger proportionate surface is exposed to the benefit of air and moisture, both of which are beneficial to the roots of an epiphyte. Terrestrial orchids, whose roots descend deeper, will be better in the ordinary-shaped pot. We hope shortly to give a list of these two classes separately, so that our readers may know how to distinguish them, the culture of each class being very different.

BASKETS.—Various materials and forms have been used in this necessary article. The first probably was made of common iron wire, painted green, and the form round, deep, and with a flat bottom. This material is almost entirely disused, for, although the paint for a time prevented them from rusting, the great moisture and heat soon decomposed the paint, and then the wire became oxydized or rusty, and is then very injurious to the roots, as well as being unsightly. Those made with copper wire are much better, lasting longer, and are not so injurious to the plants. The only objection we know of is the expense. Where that is no consideration, we should have no great objection to their adoption. Baskets have also been made of earthenware; but, if there was no other objection, their great weight would be sufficient to set them aside as bad. We have tried all these, and have come to the conclusion that baskets made of wooden rods are the best for this purpose. We mentioned before that the most ornamental are made of the corrugated or rough-barked maple rods; but, as these are not always to be met with, hazel rods may be used, and make excellent baskets. The way we make them is simple enough. First the rods are procured, and sawn into proper lengths. The smallest we use are about the thickness of a man's middle finger. With this size, the smallest baskets are made. These are seven inches wide, and three rods deep. In this size, small *Stanhopeas*, and small plants of *Aerides*, *Saccolabiums*, *Vandas*, *Gongoras*, &c. are grown. For larger plants, larger baskets are made, and thicker rods used. The largest we ever had occasion to make was for a fine plant of *Aerides odorata*. This plant is four feet high, and two and a-half feet through. The rods used for it are nearly as thick as a moderate-sized man's wrist. The basket is two feet square, which is the shape we prefer, as being the most simple and easiest made. When the rods are sawn into lengths, the ends are pared smooth with a knife; then small holes are bored through each, one at each end, as near it as possible without splitting. The instrument used to bore the holes with is a very small steel rod, about six inches long, with a wooden handle; it is filed to a point at the end intended to bore the hole with. We find it convenient to have two or three, for a reason we shall state presently. After a certain number of rods are cut and smoothened, they are taken to a place where there is a small, clear, red fire; the sharp end of one of the borers is put into it about one inch. As soon as that is red hot, the other is put in, the heated one drawn and thrust into the rod very near the end, and held there as long as it continues to burn its way without much pressure. If too much force is used, the wood will be apt to split. As soon, therefore, as the instrument ceases to burn its way through, it is replaced in the fire. The other by this time will be red hot also; this is then taken out of the fire, and applied to the hole. This operation is thus performed with each bore alternately till the hole is made through the rod. The description of this operation takes up considerably more time than the operation itself. It is quickly and easily done, as any of our readers may prove on trial. After as many rods are bored as may be wanted at one time, the next thing is to put them together. The articles necessary for this are some copper wire and a few flat-headed copper nails. Each basket will require four lengths of wire, the length of each to be in proportion to the size of the basket they are intended for. They should be long enough to meet at least eight inches above the top of the smaller-sized baskets, and from a foot to eighteen inches above the larger ones. At the end of each piece of wire make a loop so large that it will not draw through the holes; then lay the first two rods, and upon them, for the smallest basket, lay three others; nail these three to the two outside rods, thus forming a sort of raft, to use a nautical term for want of a better; turn this over, and underneath it put two other rods, to form the other two sides of the basket; then draw the four pieces of wire through the holes at each corner, the looped end being underneath. Continue to lay a pair of rods alternately, drawing the wire through each till the basket is of the required depth. The smallest size, three rods deep; the two next, four deep, and so on. When that is done, make four small pointed pegs, and drive them into each hole at the four corners. This will fasten the rods in their places, and prevent them from ever starting upwards; then draw the wires together at the top, twisting each pair over each other, and fasten them with a piece of fine wire. Your basket is now complete, and ready for use. The making of these will be a pleasant occupation to the amateur, and may be done at any time, to be ready whenever he may procure the plants, or those already in his possession may require new ones. Some may object to these baskets, because, being made of hazel rods, they may soon decay. To this we reply, that we have had experience that they will last long enough; for, by the time they are completely rotten, the plants will, if properly managed and well grown, be large enough to require new ones, and the old ones being so rotten, they can be the more easily broken up without injuring the plants, as they certainly would if the baskets were made of more imperishable materials. While we are upon this subject we will mention that we have seen some very neat baskets made of the bamboo canes; and when they can be procured cheap enough, we certainly do recommend our readers to make their baskets of this light, elegant material. We have also seen baskets made of crooked pieces of small, peeled branches of oak. These, when neatly made, on account of their rustic appearance, are very suitable for the purpose. We have particularised these various materials because, in various parts of the country, some one or other may be more easily procured at a cheaper rate than the next. To the enthusiastic admirer of these plants, every little circumstance that bears upon his favourite pursuit will be interesting, and, we have no doubt, useful, though our directions may appear to such of our readers as take no interest in orchid culture somewhat tedious, and too minute.

FLORISTS' FLOWERS.

THE PANSY.—Perhaps there is no florist flower that pleases the uninitiated so much as this flower. It is a great favourite with us, and we are always glad to see it, whether grown in a first-rate style, or simply planted out in the cottager's flower border, and left to bloom as it pleases. In every way it is pleasing, flowering from April to October, if judiciously managed. Of no other florist flower can we say the same, if we except the rose, and this exception must be considerably qualified, as the same kind of rose does not bloom all the season. The culture of the pansy in this month is to place all the very choice scarce kinds under shelter. The best way to do this is to put the plants into pots 4½ inches diameter, and place them in a cold frame, brick pit, or even turf pit. In any of these shelters they will do well. Give them a very moderate supply of water, pick off every day all decaying leaves, and keep a keen look out for snails and slugs, For more plentiful or more common kinds, the proper culture is to plant them out in beds of light rich earth, in an open part of the garden. The pansy will not thrive well in the shade. That is a point that every practical florist, we are quite sure, will agree to. This operation of planting may be done now, but great care must be taken to press the earth firmly to each plant, or the frost, if early and severe, will throw them out of the ground. This may seem somewhat curious to those who have not witnessed the effect of frost, but it is nevertheless perfectly true. A thin stratum of spent tanner's bark will in a great measure prevent this not-to-be-desired occurrence. Old plants of pansies—that is, such as have been blooming almost till now—are scarcely worth preserving, unless it happens to be a good, scarce kind. In such a case, we should take up the plant, divide it carefully, preserving a portion of the root to each division, put them in pots, and keep them under shelter till spring. We have a list by us of nine kinds of pansies that we observed at a place near Edinburgh, but time and space prevents us inserting it this week. They were the best pansies we ever saw, and during a long journey of nearly three months, when we were constantly on the look out for good new things, that is saying a good deal in their favour. We shall give them their names and description next week if possible.

T. Appleby.

THE KITCHEN-GARDEN.

Asparagus.—Where good plants are plentiful they may be forked out carefully in succession for forcing. At first, as previously directed, the bottom heat should be moderate, for the goodness and abundance of the crop depend much on this provision. The open ground plantations should at once have a liberal application of rich manure, if not already done. Fork it in, leave the surface rough, and the winter rains will wash down the fertilising matters of the manure to the roots of the plants, and the frost will mellow the surface of the soil.

Cabbage.—Those who have plants of esteemed varieties should look them over, and select for producing seed those which head the soonest and are the handsomest shaped. Place them where they are intended to stand for seeding.

Coleworts.—Those which are forward and are forming their hearts may be taken up advantageously and laid in by the heels in any sheltered corner, to be protected during severe frost. The ground thus cleared may be manured, trenched, and cast into rough ridges, to be well forked about during frosty mornings.

Cabbages.—Large varieties with hard hearts may be pulled up and stored, by hanging them up in any dry outhouse or cellar, where they will keep for a considerable time in good condition. This prevents the waste by bursting and rotting, if they are left in the ground, at this season of the year, when frosts and wet prevail. *Savoys*, early headed, may be treated in the same manner.

Cauliflowers and Brocoli now forming heads should be diligently watched, and all not required for immediate use hung root upwards in a dry shed for winter store.

Celery should now be carefully earthed up during fine dry afternoons, or much disappointment may arise from its becoming cankered and rotten. The late planted celery should be kept clear of suckers, and the surface about it be kept loose by frequent stirring.

Rhubarb.—Roots of the early varieties may be made to yield an early produce by any cottager who may have the spare corner of a fuel-house, cellar, or any other dry place. Nail a few old boards together just to hold the roots, or they may be put into an old bucket or butter firkin cut in two.

Sea-kale.—Plants should be thoroughly cleared from all dead leaves and refuse, but such leaves as still remain green should be neither cut nor pulled off. The crowns of the plants should then be protected by covering them an inch or two deep, either with coal-ashes or, what we find much better, with some kind of charred refuse.

Sea-kale Forcing.—Another mode than that mentioned in our last is the following:—Some of the stools which, by dropping their leaves first, showed that their crowns were earliest ripened, should be taken up carefully, with as much uninjured roots as possible. These planted thickly in boxes, placed in a mushroom-house, and watered frequently with tepid water, will produce two or three crops of nice shoots throughout the winter months. Forced sea-kale may also be produced in any dark cellar, or indeed in any room, if the precaution is taken of covering the crowns to the depth of six or eight inches with leaf-mould, or well decayed tan or charred refuse.* We have also practised other easy and cheap methods of forcing this vegetable. In the houses, when forcing early grapes, peaches, pines, &c., we have placed boxes and tubs filled with its roots, and when we have had room to spare, in the pits of such houses, we have placed quantities there in rows in succession, and have had abundance of excellent shoots. We have also erected slight hot-beds, with well-wrought fermenting materials, placed on a foundation of wood prunings. On the top of the fermenting materials we put twelve or fifteen inches of leaf-mould, decayed tan, or some kind of light earth, for the roots to be planted in. On this we place a rough box or frame of the required size, formed of four boards nailed together, ten or twelve inches broad. A slip or two of board is nailed across to support a covering of boards, mats, or thatched hurdles, for the purpose of keeping the plants in the dark. A frame of this kind six feet square will produce a good succession of well bleached sea-kale. Against the outsides of the frame may be heaped up any kind of rubbish, and when the heat declines it may be renewed by the application of linings of fermenting materials. By one or the other of these plans a cottager might obtain a sufficient produce not only to repay him for his labour, but a surplus wherewith to purchase garden tools and seeds. By taking up the plants and forcing them in these modes, they are so weakened as not to be worth replanting. To obtain good strong roots for thus forcing in succession every year, it is necessary to sow every April in drills one foot apart. Transplant the seedlings in the following March on a well-trenched, manured, and pulverized piece of ground. Apply liberal soakings to them of liquid manure in the growing season, with salt added in quantity regulated by the strength of the plants. By the autumn the plants acquire great strength, and may be taken up as required for forcing.

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* Mr. Barnes is of opinion that "this is a much less troublesome, cheaper, and simpler, mode of producing forced sea-kale, and that it may be produced throughout the winter with more certainty and in finer condition than by forcing it with fermenting materials on the ground where it grows." He is also of opinion that this mode produces smaller shoots, and exhausts and ruins the roots. Now, we are sorry to differ from so good an authority as Mr. Barnes on all these points. The heaviest crops and the finest forced sea-kale exhibited at one of the best country shows in England, we know, is from roots that have been forced by means of leaves heaped over them, as described by us at p. 79, for the last twelve years. Then, as to the trouble and expense, let the detail of the two systems be compared. Mr. Mills, gardener to Baroness de Rothschild, forces by means of leaves, &c., over the plants in the bed, and says in his *Treatise on the Cucumber*, &c. p, 100, "Plants of sea-kale may be taken up and forced in frames, in the same manner as asparagus, but the heads will not be so fine, independently of which they will be destroyed after the first forcing."—Ed. C. G.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

OUR VILLAGE WALKS.

(No. 6.)

NOVEMBER is the month that most severely tries the spirits of those who do not love the country, and, indeed, of those who do. The gloomy fogs that often occur, the mud of the roads, and the soppiness of the fields, make country walks very uncomfortable, and prevent many from enjoying an exercise that in almost all weathers is beneficial, and in almost every season has a charm. It certainly does require some little effort to plunge into a dense November fog; yet, wrapped in a plaid, even that unpromising atmosphere has been a source of enjoyment to me; and perhaps I may find among my indulgent readers another *oddity* who feels as I do, and can brave all weather except a straight pouring rain. There is a loneliness in a fog that I delight in. To stand and look round, and see nothing beyond the very nearest objects, and those but dimly, is strikingly impressive. An approaching step has in it something startling—it is so near, and yet we can see nothing! We feel alone in the world, and our eye mechanically turns to the misty yet lighter spot above, marking the position of the sun. This is a true picture of our earthly course. How dimly and imperfectly do we see all that passes around us; and how unable are we to penetrate the thick mist that envelopes futurity! We hear sounds of peril, but we cannot tell what is advancing, or how to escape it; and those who have the keenest foresight and clearest eye do but stand with a fearfully small extent of road open before them, and perhaps discern the outline of some object that looks like an approaching giant. Even the Christian can only "see through a glass darkly," till the veil is removed from his sight. May not, then, a wet, comfortless fog teach us a salutary lesson, and prove to us not only the foolishness of all our worldly wisdom, but the deep need we stand in of light from above?

There are, however, days of extreme beauty in November, while the last rich tints linger in the trees, and here and there a flower still makes the hedgerow interesting. In spite of the wet, which now in some places never dries up, a morning walk has abundant beauty, and fully bears out the pre-eminence which the country possesses, even in winter, over the confinement of the town. I was standing one day on a natural grassy terrace, at the edge of a larch plantation, looking down upon a small sunny farm, and beyond it, over a thickly wooded valley, dotted with quiet residences and cottages, some of them visible, and many others I knew, snugly closed in with trees: the sounds of tillage, the voice of the ploughman, and the creak of the plough, rose from the fields beneath me; the sharp strokes of a busy hammer came from the outbuildings of the farm; and near me the 'bill' of a woodman, making up larch bavins, made melody too, for there is music in all the sounds of country life. I bethought me of the clatter of carts and carriages in a noisy town, of the close air, and unlovely sights that inhabitants of towns endure, and it made me glad to think that perhaps THE COTTAGE GARDENER has been the means of promoting the enjoyments of many who would fain live among the beauties of nature, and whose little garden or flower-stand has glowed more richly since the skill of kind and scientific men has been brought so much within their reach.

I thought, too, as I stood admiring every thing around me, that the agriculturist possesses the most peaceful enjoyable station of life, *provided* he lays up in his heart the solemn command, "Walk before me, and be thou perfect." God is the "shield, and exceeding great reward," of all who take hold of His covenant; and this is the tap-root of man's prosperity, be he prince or peasant. It is not making haste to be rich that makes us so; it is not rising up early, and late taking rest, and eating the bread of carefulness, that makes us easy and happy. We are directed to be "not slothful in business, fervent in spirit, serving the Lord." We may, in this temper of mind, be less rich than our worldly neighbour, but safe and more happy.

The labours of an English farmer, or gardener, or labourer, are among such beautiful things,—the smell of the earth is so pleasant, the early morning air is such a draught of health,—the very cattle and beasts of burden are, or should be, so interesting to him with their willing returns for the care he takes of them,—the seasons as they glide round are so delightful, and he is so mixed up with, and belonging to, each and all,—that his life is one of great blessings, many privileges, and much scope for doing good. What a touching reproof, too, is daily brought before the eyes of the agriculturist! "The ox knoweth his owner, and the ass his master's crib, but Israel doth not know, my people doth not consider." Are *we* wiser, are we more thoughtful, than the people of God were then? How many reproofs rise up like adders under our very feet as we walk through our own quiet, beautiful land! The peaceful cattle gathering around the farm-yard gate, the poultry retiring one by one to roost through the well-known door, the dog rejoicing to see his master, and knowing his step and voice long before he sees him, all condemn the coldness and indifference of man to God. If the cottager, if every body, considered these things, they would not find their path more rugged or their days more dull; and they would have this added comfort, that when the long night comes in which no man can work, they would enjoy a sunrise of glory that will never set again.

The elm and the lime trees have been this year remarkable for the exquisite gold colour of their dying leaves. Some elms I have seen have been most strikingly beautiful, and the prevalence of this colour among the autumnal tints this season has made some spots appear quite like a fairy scene. The lime is a beautiful tree in all its stages, and in the flowering season its sweetness is extreme. The little bunches of delicate pale flowers drooping from every twig give the whole tree a very graceful appearance, and afford an abundant supply of food for thousands of bees, who come from long distances, attracted by the powerful scent. The lower boughs bend down till they rest upon the ground, forming a thick and beautiful shade, under which a group may enjoy coolness and seclusion during the hottest day; therefore these trees are particularly suitable to the lawn and pleasure-ground. The flowers, fresh or dried, made into tea, are good in all nervous complaints, relieving the giddiness and trembling that arise from disordered nerves. The inner bark is said to be good for destroying worms. The wood of the lime is so white and delicate that it is much used for making chip bonnets, and a high price is often offered for it on this account. It is, I think, the first tree to greet us with its early buds. "The limes are bursting into leaf!" has been for many years a joyful exclamation, when the lingering chilliness of spring has made us long for summer. How delightful are the first tokens of returning vegetation! We are now fast entering into the dark wintry season, when all things sleep; and we cannot tell whether our eyes may ever again behold the summer's sun; but he will come forth at the appointed time, to run his gladdening course; and the limes will again spring forth to greet him. Let us be prepared to "arise and shine," when our Great Light shall come.

EXTRACTS FROM CORRESPONDENCE.

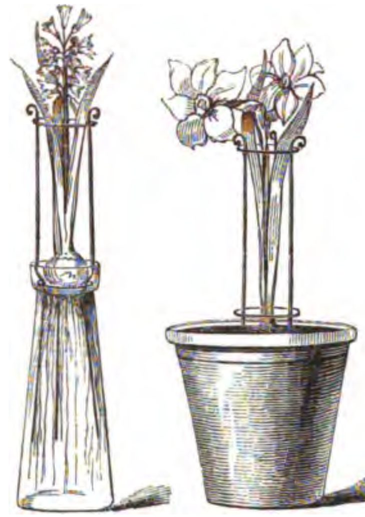
NEW BEE-FEEDER.—I find a bee-feeder made as follows useful, being cheap, large, and easily made by any one. I buy at a gutta percha shop one of their shilling basons, and about two pennyworth of their tubing. I place the bottom of the bason *on hot water*, and when it is *soft* put some round substance in it, say a pound weight, to destroy its concave shape. This I do to allow the usual wood float to sink to the bottom when the bees have emptied the bason. This done, I cut a hole at the bottom of the bason, the same dimensions as the tubing, and thrust the tubing through to the proper *height*, sealing it carefully round, by the help of the bit of gutta percha cut out, to make it water tight, which point I always test before I put the food in. I have a bit (say an inch) of tubing projecting at the bottom of the feeder, which keeps it firm in the hole *at the top* of the hive. I find that plan answers better in wood feeders also than having the bottom flat, like those you buy at Neighbour and Sons. The advantage of my gutta percha affair is the immense quantity it holds, and any one can make it. *As to a lid*, a bit of glass, or slate, or pasteboard, or wood, put at the top does famously. Of course the tubing must not be thrust *quite* as high as the sides of the bason, or the lid would lie on its top, and prevent the bees getting up. I have two so made at work; and this last week two of my hives, one containing two first swarms and a second, and the other three second swarms, have carried down out of them eight pounds each, made according to your prescription. My feeders hold two and a half pounds each. I fed a number of hives last autumn and this spring with a mixture as follows: one quart of house table beer, one pound of loaf sugar, one quarter of a pound of coarse brown sugar, and a quarter of an ounce of salt, boiled for five minutes. They all did well, and such swarms as mine were never seen in this country before. I gave very liberally both in autumn and spring.—A BROTHER BEE-KEEPER.

TO CORRESPONDENTS.

MANURING FOR POTATOES (*Rev. W. B*).—We are decidedly opposed to putting fresh manure to potatoes, either at planting time or at any time during their growth. It keeps the stems green and the tubers unripened until later than if it were not applied at all. Your freshly broken-up pasture, though you have had a crop of oats from it, cannot require any manure.

GREENHOUSE AND COW-HOUSE COMBINED (*T. W.*)—Your plan is unique, but we know of no reason against its success. Our correspondent writes thus: "I am building a new cow-house, and I have determined to roof it with patent plate-glass, glazed on the rafters—just such rafters as for a slate roof. I will then train vines inside. Please to tell me the best vines for this purpose. The cows will be in the house all the winter, and until June—they will keep the place warm." We should have a groove cut on each side of the rafters to let the glass into, having the panes of sufficient width to reach from rafter to rafter, and have no cross splines, for they would be of no use to support the glass, and would obstruct the light. You cannot grow a better grape in such a house than the Black Hamburgh.

HAMILTON'S FLOWER SUPPORTER (*Inquisitor*).—The woodcut below will enable you to judge of this for yourself. We think it combines all that is requisite for the purpose for which it was designed. It is economical, keeps the bulbs stationery, and the flower upright, without disfiguring its appearance, besides facilitating the process of draining the water in bulb-glasses without handling the stem and roots.



MARTAGON (*Ibid*).—This and the Turncap, or Turban lily, are both the same flower, *Lilium martagon;* but the Tiger-spotted lily is *Lilium tigrinum*.

BORDERS TOO DRY (*S.*).—This arises from your southern aspect, the absorbent nature of your stone walls, and the sheltering of the horse chesnut, to say nothing of its roots. There is no remedy but the watering-pot, aided by digging your borders deep, and mixing the soil with a little stiffer soil. Why not grow dwarf shrubs only in them, and turf up round these, leaving a small circle round each to fill with water as required?

INNOCENTS (———).—Thanks for your information. It shall be attended to.

LIST OF GLADIOLUS (*A. Z.*).—We find we can do nothing at present in this. There are some hundreds of seedling gladioluses, and we could do no good by attempting to give any thing like a useful list of them. Consult our previous lists. A friend of ours flowered 1000 gladiolus seedlings this season.

MOULD ON HYACINTHS (*A Young Florist*).—It is only the old ring left by the former roots and the dead coating of the bulbs that have damped, and thar happens whichever way they are grown, but does not effect the bulbs in the least.

POTTER'S LIQUID GUANO (*Ibid*).—We know nothing about this, as we never use any liquid manure unless we see it made. *Soot and water* is an excellent liquid manure, if used in moderation both as to quantity and strength.

CHINESE PIGS (*J. Ball*).—Our correspondent wishes to know where he can purchase some of the true breed of this animal.

SPINACH TURNING YELLOW (*H. W. W.*).—Look to the roots. If no grub or wireworm is attacking them there must have been something too stimulating in the manure you applied.

HIMALAYAH PUMPKIN SEED.—Will *all* those of our readers who saved seed be kind enough to send us a few. We have many applications for them, and not a seed in our possession. Will the applicants be kind enough to take this as a general reply.

OVER-LUXURIANT IMPERATRICE PLUM (*T. P. F.*).—Root-pruning ever must have time to produce its effects. When healthy-looking trees still produce much wood on the heels of root-pruning, it is a sure sign that the operation has not been sufficiently severe. In such cases we frequently take up the tree, and replant, expecting to find some powerful roots of a perpendicular character. If you do so with your imperatrice, pray do not allow more than half a yard in depth; below that, substitute an artificial substratum of stone or brick.

STAWBERRIES BLOOMING NOW (*Y. Z.*).—Strawberries, of the Hautbois section, are very apt to bloom out of season. They do not like to be tampered with. We could force a whole bed of the Hautbois to blossom in October, by cutting off their tops in September, and applying liquid manure. In this case, it is the organised buds intended for next year's crops which are compelled prematurely to leave the rest state—in other words, they are naturally very excitable. Let the runners spread freely on all sides, and do not meddle with them, except by spreading some rich manure among them immediately. This will protect their crowns, and be nearly vanished by next March. For new beds get Kean's seedling, the British Queen, and the Elton. Any truly respectable nurseryman will furnish white Raspberry canes.

Heating a Flued Wall (*An East Lothian Sub.*).—You should have stated the length of your wall, and we then could have thrown out suggestions better adapted to your purpose. We should say that, by your arrangement, one fire would heat nearly forty yards in length: of course, two would do it better. Now, if you have a furnace extra, it will be better than having too little power; such need not entail any additional expense; hazard the mere outlay for the furnace. You must bear in mind that the farther the heat travels the more it becomes dissipated. Much, however, depends on the kinds of fruit, and their arrangement on the wall. Pears and plums would not be injured under judicious arrangments: they of course would be at the end farthest from the fire. Take off your tiles now, and let the rain enter; only take care there is a free egress from the boxes. The latter should now be surrounded and covered with litter of any kind, merely to ward off extremely low temperature.

Pines on the Hamiltonian System (*J. W.*)—Your plants should have produced fruit before now. Your bottom heat of 84° is too exciting, pray drop 10° from now until February. It ought to be understood, however, that the suckers from *established* Hamiltonians will fruit more speedy than the original plants. It would appear that the older the plants get the sooner they "show." Have another winter's patience, moderate your heats, and withhold water entirely from their roots for many weeks, and write us again. Be sure to ventilate freely. We would not take the vines out; let them be fastened as near to the roof as possible. Give more air, even on account of the vines, for your case is a compromise, as half gardening matters are. Prune immediately, and use white lead on each cut. By all means keep out all the wet you can. Also, pray put several inches of litter or leaves on the border.

Yellow Acacia Cuttings (*A Priest*).—You have struck some cuttings in 48 sized pots, according to our directions at page 123 of vol. 2, and you ask how you ought to treat them? Keep the cuttings in those pots till the end of March; then pot them separately in three-inch pots in loam, peat, and sand, mixed in equal proportions. Keep them in the hot-bed till midsummer, and then shift them into other pots one size larger, using one half loam: after that return them to the hot-bed for a month, and by St. Swithin's-day remove them to the greenhouse. Do not expose them to the open air till the following summer.

Gladioli in Pots (*R. J. Y.*)—If grown singly put one in a six-inch pot. Your bulbs of *G. cardinalis* and *G. byzantinus*, not larger than those of the crocus, will probably not flower next year. A six-inch upright pot is sufficient for one large bulb of gladioli, and for three such bulbs as you bought. The best way is to put five bulbs in a nine-inch pot—one in the middle and the rest at equal distances round the side.

Angle of Houses (*W. S. Watson*).—In using the quadrant, for determining the angles of hothouse roofs, as recommended a short time ago, you must count from the commencement of the arch, and not from the middle, and then, wherever the knob hangs, that will indicate the angle. If, in your case, it hangs at 75°, then you will find the roof is flatter than that marked as 70° in the diagram, p. 257, vol. ii. There is a want of definiteness in this respect among gardening authors, for some of them, counting as it were backwards, would say that your roof was placed at an angle of 15°; but the mode adopted is generally understood from the preceding and following context. We prefer the mode recommended as the simplest.

Many Questions (*An Anxious Gardener*).—*Roses.*—Young plants in cold pits should not be pruned until spring. They may be protected from frost by sticking fern amongst them, or covering the glass with mats, straw, hurdles, &c. *Espalier Pears.*—You might lay in a young shoot here, and there between the main shoots, which are a foot apart, but it should have been done in summer, and the others shortened. See, however, that the leaves from one shoot will not shade those belonging to another. *Camellias.*—Those that do not please you will not be improved in appearance *now* by setting them on a stage for several weeks out of doors, though, if you protect them, they may be little the worse. We think they would be better housed. See a late article on the subject. *Asparagus.*—Do not cut or trim your asparagus roots at all that you intend forcing. Take them up as whole as possible. Set the crowns close together, and if the roots overlop each other, it will not signify if a little light earth is worked in amongst them. *Fuchsias.*—If the fuchsias remain in the greenhouse they must be kept slowly growing, and should be pruned whenever the buds are fairly broken; if in sheds, give little water, and prune in spring, when the new shoots are half an inch long. *Geraniums.*—Water them when dry, and not atparticular periods; this will depend upon the weather, and the heat and air you give them, and as to whether the pots are full of roots, or the reverse.

Forest Trees (*G. B. C.*). — We are glad that "Our Village Walks" has aroused you to pay attention to forest trees. The only work that we know, combining all your requirements, scientific distinctions, popular description, and drawings, is *Selby on Trees.*

Dorking Fowls (*T. P.*).—You will see the same question asked at p. 82. If we receive an answer we will insert it.

Mummy Wheat and Black Barley.—*Mr. E. Palmer*, of Charwell-street, Banbury, very liberally offers to supply any of our readers with a few grains of these if they will enclose him two postage stamps with their address.

Cankered Parsnips (*J. Butler*).—The gangrene or canker in your parsnips is caused by the wetness of your soil, which you say is "very heavy." Take them up immediately, and store them between layers of sand or other dry material. Drain your ground by all means, and trench it, so as to bring a small portion of "the loose strong subsoil" to mix with the surface soil. If in addition to this you mix some coal-ashes and bricklayers' limy rubbish with it, you will improve the staple for growing both parsnips and potatoes, and, indeed, for all vegetables. Do not plant your potatoes until February, but keep them until then in dryish earth or sand. Flour-ball potatoes are good for autumn-planting in moderately light soil.

Hard-water (*Dianthus.*)—Instead of a pint of gas ammoniacal liquor added to 60 gallons, as recommended at p. 9, you may put in an ounce of carbonate of ammonia from the druggist's. It is all the better to make the mixture a day or two before using it. We have not forgotten about the flower-pots. Place the supplementary number at the end of the volume.

Weigelia rosea (*W. R. I.*).—This is quite hardy. Paxton's Botanical Dictionary is stereotyped, and, therefore, what has been since discovered to be a mistake (a mistake on the right side) could not be corrected. *Hypericum chinense*, or *nepalense*, is a greenhouse evergreen shrub.

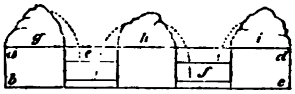
Potato Onion (*J. M. C.*).—Plant now on the surface of a light moderately-rich, fresh-dug soil. Cover each bulb with a little heap of leaf-mould or very rotten dung. Plant eight inches apart. Do not earth them up, but as soon as the leaves are full grown clear away all covering from the bulbs. They will be fit for storing as soon as the leaves are dead in July.

Scarlet Geranium (*E. L.*).—Your plant has "three very thick brown branches, and the same number of green branches," and you wish to know which you should cut off and fold in paper. The "three very thick brown branches" are the oldest and ripest, therefore the best to retain on the plant, and would also be the best to cut off for preserving in paper till the spring; but our friend Mr. Beaton has told us long since that that experiment was more curious than useful; nevertheless, you may try the three green shoots that way, cutting them to one joint from the old wood, and you will oblige us if you let us know next February how you succeeded, that being a good time to plant the cuttings.

Ixia Seeds (*L. L.*).—The proper time to sow the seeds of ixias, and all other bulbs which rest periodically, is that at which they naturally begin to grow. Ixias, sparaxis, and some gladioli, begin to grow at the end of September, therefore that is the proper time to sow their seeds. Sow yours immediately. Upright pots are manufactured at all the potteries.

Guernsey Lily (*A. A., Clericus*).—The offset which is shooting up from the bulb of your Guernsey lily will be of no use to you. When the bulb has done flowering throw the whole away, and use the pot for some other plant.

Ridging (*Ibid*).—Without reference to the communication you mention, we will state the most effectual mode of performing the operation described by Mr. Parkins, as quoted in *Johnson's Gardener's Almanac.* Let *a b c d* represent a section of the ground to be thrown into ridges, and trenched two feet deep. Measure the ground into beds four feet wide; then lay the top spit of the bed *e* on the bed *g*, and the second spit of *c* on the bed *h*; then the top spit of *f* on *h*, so that the top soil and the subsoil are kept on separate and alternate beds, and may be either mixed, reversed, or returned, as the gardener may wish. When the first thrown out beds are sufficiently pulverised they are levelled down, and others thrown out in the same way. *g h i* represent the ridges thrown out, and left as rough as possible.



Dahlias (*R. Reynoldson*).—Any of the florists who advertise in our columns will supply them.

Brambles for Bee-hive Making (*A Reader, Pinxton*).—Our correspondent wishes to know the proper time for getting these for sowing together the bands of straw hives, of what age they ought to be, and how to manage them? We will publish an extract from your note.

Johnson's Gardeners' Almanack (*Columella*).—It contains fresh information every year. Keep your *dissolved bones* to apply to growing crops in the spring.

Name of Plant (*Rev. A. Slight*)—Your evergreen twining-plant, as well as we can make out from the dried specimen, is *Kennedya Sterlingii.* Introduced from Swan River in 1834.

Ash Tree (*Ibid*).—This being "a noble-tree, and adding to the appearance of the house," we should not cut down, as it is situated in the part of the garden devoted only to ornament. It is quite true that very few plants will grow beneath it, but then the grounds might be so plotted out that you would not require them to do so; and, remember, when you cut down a noble tree you do that which you will never live to see replaced. You may arrange your flowers and shrubs—may move and replace them in a thousand modes to be beautiful—but a tree, forming a handsome feature about a residence, can never have the vacancy it leaves replenished during a lifetime of ordinary extent.

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WEEKLY CALENDAR.

M D	W D	NOVEMBER 22—28, 1849.	Weather near London in 1848.			Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
22	Th	St. Cecilia. Sun's dec. 20° 12′ s.	T. 55°—43°	S.W.	Rain.	32 a. 7	iv	10 53	8	13 37	326
23	F	St. Clement.	T. 52°—39°.	S.	Rain.	34	59 a. 3	11 59	☽	13 20	327
24	S	Grey Wagtail arrives.	T. 45°—22°.	N.	Fine.	36	58	morn.	10	13 3	328
25	Sun	25 Sun. aft. Trin. Catherine.	T. 48°—40°.	S.	Rain.	37	57	1 9	11	12 45	329
26	M	Mich. Term ends. Oak leafless.	T. 55°—43°.	S.W.	Rain.	39	56	2 21	12	12 26	330
27	Tu	Anniversary of Botanical Society.	T. 51°—41°.	W.	Fine.	40	55	3 35	13	12 6	331
28	W	Elm leafless.	T. 54°—46°.	S.W.	Fine.	42	55	4 53	14	11 46	332

St. Cecilia, or **Cecily**, was a Roman virgin, martyred for her adherence to the Christian faith. It is related that, notwithstanding her vow of chastity, she was compelled by her parents to marry a heathen nobleman named *Valerianus*, and that he was converted by her exhortations. She has been considered the patroness of ecclesiastical melody, from her excellence in both vocal and instrumental music, an excellence, as the legend says, so exquisite as to have attracted to her an angel from his sphere. This is alluded to by Dryden, when he says—

> "Let old Timotheus yield the prize,
> Or both divide the crown;
> *He* raised a mortal to the skies,
> *She* brought an angel down."

When Stationers-hall was rebuilt after the fire of London, a musical festival was held there on St. Cecilia's anniversary, and Purcell composed for the occasion his celebrated *Te Deum* and *Jubilate*. She was martyred A.D. 230.

St. Clement.—Clemens Romanus, or St. Clement, according to the most trustworthy authorities, was the third bishop of Rome, Linas being the first, and Anencletus the second. An "Epistle to the Corinthians," full of interesting memorials of the early Christian Church, is generally believed to have been written by him. Another fragment of an epistle is also ascribed to him, but others bearing his name are certainly spurious. He died on this day, about A.D. 100, and some authorities state that he was martyred by drowning, being cast into the sea with an anchor fastened to his neck. This was a common mode of execution among the Romans, and from this tradition so many sculptured figures of anchors have been added to the ornaments of the Church, and other parish property, of St. Clement Danes in London.

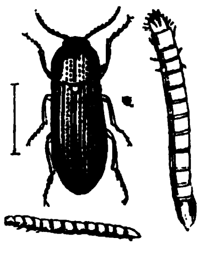
St. Catherine was a native of Alexandria, martyred by order of the Emperor Maxentius in the year 305, according to the legend, not only for being a Christian herself, but for converting others, and among them his empress. The wheel bearing her name, the memory of which is still preserved in many inns' signs, and in some heraldic devices of our ancient families, was the intended instrument of her torturing or death, but failing in its operation, she was beheaded by the Roman executioner's sword. Her remains were believed to have been discovered on Mount Sinai, and a tomb was erected on the spot. To this pilgrimages became frequent, and a chivalric order of knighthood was established in the year 1063, the members of which were known as the *Knights of St. Catherine*, to guard from the attacks of the Arabs the pilgrims passing to and from her shrine. The habit of the knights was white, on which was emblazoned half a wheel armed with spikes, and across it a sword stained with blood.

Meteorology of the Week.—The average highest temperature of these seven days, from observations made during the last 22 years, is 48.3°, and the average lowest, 35.3°. The greatest heat during those years was on the 28th in 1828, when the mercury rose to 60°. The greatest cold observed was on the 25th in 1826, when it sank to 21°. During 75 of the 154 days in the 22 years rain occurred, and the other 79 were fair.

Natural Phenomena Indicative of Weather.—*Milk* becoming sour during the prevalence of lightning is probably caused by the formation in the air of a minute portion of nitrous acid by the electrical discharges, and this acid being absorbed by the milk, causes the phenomena so commonly known as "turning sour." *Currents of air* far above the surface of the earth usually alter their direction some time before the alteration occurs below. Hence a change of wind frequently may be foretold by observing the direction from which the higher clouds are moving. The strength of the coming wind also may be estimated from the velocity with which those clouds are passing on. *Porpuses* sporting and plunging out of the water betoken stormy weather. This is a well-known and truthful prognostic that did not escape the notice of the ancients, who fabled that these fish approached ships on such occasions to offer their aid to the mariners in case of disaster.

RANGE OF BAROMETER—RAIN IN INCHES.

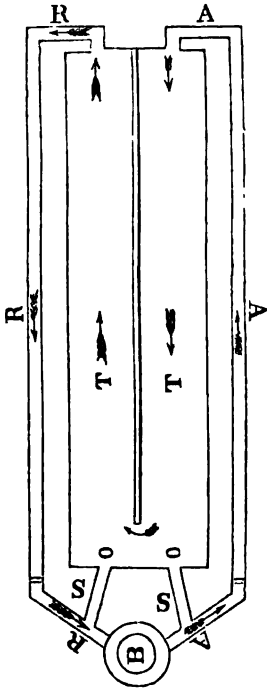
Nov.		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1818.
22	B.	29.455	29.409	29.618	30.246	29.680	29.579	29.646	29.258
		29.170	29.268	29.536	30.185	29.555	29.336	29.570	29.168
	R.	0.21	0.17	0.62	—	—	0.04	0.01	0.01
23	B.	29.736	29.485	29.565	30.146	29.981	29.799	29.964	29.207
		29.686	29.152	29.275	30.124	29.836	29.711	29.531	29.151
	R.	—	0.11	0.01	—	—	0.07	0.18	0.04
24	B.	29.957	28.890	29.568	30.031	30.144	29.696	30.126	29.763
		29.881	28.793	29.523	29.947	29.995	29.580	20.037	29.391
	R.	—	0.32	0.08	—	—	0.50	—	—
25	B.	29.913	28.989	29 682	30.102	30.021	29.663	30.069	30.084
		29.783	28.816	29.604	29.983	29.937	20.260	29.925	29.925
	R.	—	0.12	0.34	—	0.06	0.27	0.04	0.05
26	B.	29.894	29.208	29.685	30.296	29.846	29.252	29.861	29.869
		29.798	29.060	29.665	30.221	29.814	29.232	29.483	29.826
	R.	0.02	0.01	0.01	—	—	0.01	0.54	0.38
27	B.	29.697	29.344	29.798	30.326	29.957	29.318	29.226	30.078
		29.583	29.069	29.648	30.237	29.857	29.306	29.143	29.772
	R.	0.11	0.24	—	—	—	—	0.17	—
28	B.	29.634	29.266	30.143	30.110	29.580	29.544	29.141	30.090
		29.464	28.893	30.075	29.986	29.561	29.402	28.908	29.962
	R.	0.60	0.04	—	—	0.01	—	0.04	—



Insects.—One of the greatest of pests to the cultivator of the soil, whether in the field or in the garden, is the *Wire-worm*. It is, in truth, no worm, but the grub of a particular bettle called *Cataphagus lineatus*, by some entomologists, and *Elater segetis*, and *E. striatus* by others. It is very appropriately called *Calaphugus*, from a Greek word signifying to devour, and *lineatus*, or lined, from the brown lines along its wing-cases. The larva, or wireworm, of this beetle is a pale, dirty orange, or tawny colour, having six very short legs. The body is formed of twelve scaly rings, besides the head. Two different kinds, the offspring probaby of different species of this genus of beetle, are represented in the annexed cut. In the same appears the *C. lineatus* magnified, and the line by the side shows the natural length of the insect. It is of a dull brown colour, with a greyish down over it; head and thorax black; the lines on the wing-cases are in pairs, united at each end: and the legs and antennæ dull red. The beetle may be found under moss in hedges, and elsewhere, throughout the year. Its larva preys upon the roots of almost all cultivated plants. In the garden, those of lettuces, turnips, carrots, potatoes, cabbages, irises, pinks, lobelias, anemones, ranunculuses, carnations, and many others, are destroyed by this vermin. Digging gas lime into the soil has been recommended for driving it away; and the root of the white mustard is said to have the same effect. Other remedies are to grow plants for which they have a greater fondness near those we wish to protect. The roots of the double daisy are such a lure for them, and from a row of these, grown to protect carnations, &c., 2000 wire-worms are recorded as being taken in one season. Soda-ash dug plentifully into the soil is also said to destroy them; but their most effectual exterminator is the mole.

THE following letter from Dr. Green, a physician residing at Youghal, near Cork, is inserted thus prominently not only because the selection of plants is, for the most part, very worthy of adoption, but because the arrangement of the house is excellent, making the most of a given space, and because it enables us to furnish our readers with a plan of tank-heating. Dr. Green says:—

"I completed a plant-house nearly twelve months since, 46 feet long, 14 feet wide; back wall 17 feet high, front wall 7 feet. This is furnished with bottom heat by means of a hot-water tank, covered with slate, on which is a layer of compost of 12 inches thick, in which the plants are either planted or plunged. The atmospheric heat is contributed by means of a 4-inch iron pipe passing all round the tank externally, and the whole is heated by one conical boiler; thus—

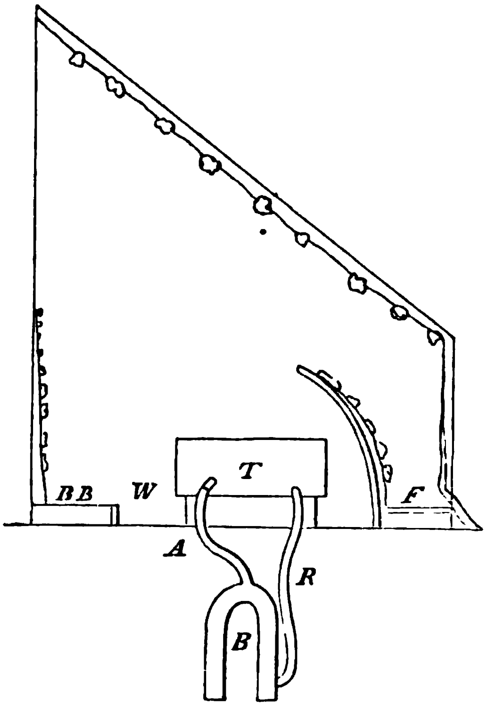


T, the tank; B, the boiler; A, the flow-pipe; R, the return-pipe; S S, a flow and return pipe, which can be substituted when it is wished to circulate hot water in the tank only.

The bed over the tank contains stove plants, the shelves greenhouse plants, the front trellis and back wall peach and apricot trees, the rafters vines, and orchideæ are suspended.

As yet, all have thriven amazingly; but now comes the winter, and in this *multum in parvo* I fear that sufficient heat for my stove plants may injure the vines and peaches, &c. At present my heat is 60° during the day and 50° at night. Can I reduce it still more, and how far, with safety to the stove plants? In order that you may be able to inform me, I annex a list of the plants in the tank-bed, &c.

Abrus Precatorius.
Allamanda Cathartica.
Amaryllis (var.).
Aphelandra cristata.
Æschynanthus (var.).
Astrapœa Wallichii.
Begonia fuchsioides.
Cattleya Forbesii.
Chrysophyllum macrophyllum.
Coccoloba uvifera.
Coffœa Arabica.
Columnea splendens.
Combretum grandiflorum.
Cookia punctata.
Cypripedia (var.).
Dendrobium (var.).
Dipladenia (var.).
Dracœna terminalis.
Epidendrum (var.).
Eranthemum Pulchellum.
Eugenia Edulis.
Euphorbia splendens.
Ficus Elastica.
Franciscea hydrangiformis.
Gardenia Stanleyana.
——— Florida.
Gesneria (var.).
Gongora atropurpurea.
Hibiscus splendens.
Hura crepitans.
Ipomœa Horsfallia.
——— Learii.
Ixora bandhuca.
——— coccinea.
——— crocata.
Justitia carnea.
Lælia autumnalis.
Luculia gratissima.
Lycaste (var.).
Mammea Americana.
Maxillaria (var.).
Musa sapientum.
—— Cavendishii.
Musa coccinea.
Nepenthes distillatoria.
Oncidium (var.).
Passiflora quadrangularis.
Phaius (var.).
Pimelea spectabilis.
Poinciana Pulcherrima.
Psidium Cattleyanum.
Rhaphistemma Pulchellum.
Saccharum officinarum.
Stanhopea (var.).
Stephanotis floribunda.



B, boiler.
B B, back border.
W, walk.
T, tank.

P, peach trellis.
F, front walk.
A, flow pipe.
R, return pipe.

We have already said that we consider the arrangement of the house is particularly good, and the hot-water apparatus is also very complete; but we recommend the vines to be removed from the rafters and carried up close under the glass, where they will be cool enough to winter. The temperature may be safely reduced, *gradually*, to 45° at night, and from 50° to 55° in the day-time, till the middle of February, and then raised gradually to the heats now employed by Dr. Green. The air must be kept dry accordingly, and no more water given to the plants than will just keep the soil a little moist. The *Luculia* and *Pimelea* are the only plants in the list that will be inconvenienced by too high a temperature, and they should be kept near the source of ventilation. The only fear we have as to this combination of cultivation is, that when the vines come into full bearing the apricots on the back wall will suffer from their shade and from the heat in winter. The plants we would discard from the above list, as the rest fill their spaces, are, *Astropœa*, a poor thing except the foliage, and the three *Musas;* the *Coffee-tree*, *Cocoloba*, *Cookia*, *Chrysophylla*, *Eugenia*, *Hura*, *Mammea*, *Psidium*, and *Sugar cane*, although all good in their way, are not adapted to the "*multum in parvo*" system. Instead of devoting the back wall to apricot and peach trees, which are of doubtful success, we recommend it to be occupied by the Passion-flower, Psidium (guava), Mammea, and Eugenia, all fruit-bearers; or, to those who prefer a fine surface of foliage, the *Ficus elasticus* (Indian-rubber tree) and the *Chrysophyllum macrophyllum.* We take this opportunity to observe that conical boilers are not suited for coals that will *cake.*

THE FRUIT-GARDEN.

ORDER OF BUSINESS THROUGH THE WINTER.—"Order is heaven's first law," according to our poet, and in no profession are the benefits resulting from an orderly or methodical course more extensive than in gardening. We consider the present an important period to the fruit gardener—more so, perhaps, than any through the whole year; and we think it will be well to give a kind of epitome, of a perspective character, of the main points in fruit-gardening during the dormant season, or up to the blossoming period in fruit trees, when all arrangements necessary in the meanwhile must be completed.

PLANTING.—To this we must first draw attention. But as we have done so before somewhat recently, our remarks may be few. The chief point is to watch the weather, and to plant when it can be done safely and efficiently. This becomes necessary for a double reason—first, on account of the welfare of the trees; and, secondly, because no one kind of business in a garden can proceed in a continuous way, to the total exclusion of everything else. It is generally recommended to plant in wet weather. We by no means think such a course the best; nevertheless, the air should not be dry at the time. All good and careful planters keep a water-pot, and perhaps a syringe, by them at the time of removal, for it is not well to use the water-pot rose liberally when there is a ball of earth attached to the plant; it will so loosen the ball as frequently to detach a considerable portion—indeed, a slight dewing with the syringe is all that is needed, the object not being to make the roots wet, but to prevent them becoming dry.

WALL TREES.—Another consideration is to go over the walls as soon as possible, and to draw away all superfluous bandages, nails, shreds, &c., both partially from the old wood, and totally from the young shoots. This must be done preparatory to pruning; but there is yet another reason—the shreds must be picked over, proved, and cleansed, the nails polished, and the whole placed under gardening quarantine. By the latter I mean that steps must be taken to destroy insects and their eggs. The best way, after passing every one of the *shreds* through the hands, and proving by a tug whether they will endure another season, is, when the whole is collected, to subject them to a strong heat, either dry or moist. A heat of nearly two hundred degrees will be necessary, and that for nearly an hour; for it is astonishing what a high temperature some of the rogues will endure. Of course, if water has been used they will be spread out and carefully dried afterwards, and then stored away in a proper place for use.

As to the *nails*, those which have lost their points will be rejected; the others should be shook in a coarse sack: this operation, which is often practised in seed-shops in order to brighten samples of seeds, may not be generally known beyond that circle—we therefore describe it. A small portion of the article is put in the sack, and two persons, one at each end of the sack, take hold of the two extreme corners, one in each hand, and by a kind of thrust force the enclosed materials towards the operator at the other end; the person at which proceeds in precisely the same manner to impel them back again, and thus by a reciprocity of action the materials are kept in constant agitation. About five minutes thus tossing to and fro will cleanse one lot of nails, their friction against each other effecting the desired cleansing; and then another lot may be introduced, and so on. Some persons use oil after the cleansing process, but there is scarcely any occasion for it. In our youthful days we had much to do in matters of this kind, being brought up originally to the nursersy and seed business; and being accustomed to the counter, we had an opportunity of inspecting the secrets of the seed shop. In those times we have seen old onion seeds, not worth two shillings the pound, mixed up with good Deptford or white Spanish onion seed of fresh growth, which was worth some six shillings a pound at least, mixed of course according to a certain ratio; yet the sample was considered a respectable one after these nice operations. The old and dull-looking onion seed was shaken in the sack, and a few drops of oil poured in made all bright; the old seed came out with all the polish of "Hunt's matchless." Trusting this digression is pardonable, we return to the subject itself.

One matter alone, we before observed, must not be permitted to engross the mind in horticultural matters; and, by getting the nails and shreds drawn betimes, some indoor work is furnished during those inclement periods which must arrive, and during which planting and other outdoor operations must be set aside for awhile.

EXTIRPATION OF INSECTS.—This business is not confined to the summer season in gardening affairs; to be successful, the cultivator of a garden must be ever on the alert, for if in the moral world while men sleep the enemy sows tares, so it may be said of the world of nature—vigilance unceasing is the condition imposed on those who would excel. The principal insect we would now allude to is the *American blight.* This is doubtless one of the greatest pests in the orchard, and very difficult to extirpate; indeed, there is no recipe which will at once destroy it without serious injury to the tree, at least so far as we are acquainted. If any of our readers are *really* in possession of such a secret, we do hope they will benefit the public by publishing it widely through our pages. We have tried several recipes, but know of nothing better than proceeding on the principle of blocking the rogues up in their dens with a mixture of such a nauseous character that they cannot possibly thrive beneath its influence, and which, if persisted in on every manifestation of the blight for a whole twelvemonth, will end in a total extirpation. About the middle of October they seem to spread at a rapid rate, and this is the time, or at least as soon as the leaves are fallen, to commence operations. The mixture we use is thus compounded: six ounces of soft-soap beat well up in a gallon of warm water; half a pound of sulphur is then added and beat up, and thick clay water being duly prepared in another vessel, the soap mixture is thickened with it until it produces a very thick daub when used with the brush. Before it is laid on the trees, the operator carries a potful of urine from the cow-houses or elsewhere, and syringes every part of the tree with it, or at least syringes every portion before applying the thick mixture. A common painter's brush will accomplish the process, and it must be thoroughly rubbed into every crevice. It is a good plan to add a little fresh lime; such will leave a colour when dry, which will prove a tell-tale, and guide the brush a second time to fill up those crevices which had been missed in the first operation. This mixture will also destroy the scaly insect which so much infests the apple and the pear. It may be well here to mention, that a most respectable gentleman informed me that Dr. Darwin, of Shrewsbury (?), had used urine alone for pears, and found it clear away everything, moss as well as insects, and that his trees always grew with extraordinary vigour after the operation.

PRUNING.—We may here advert to the propriety of commencing pruning as soon as possible: the benefits of early pruning have been before pointed out. Little more can be said now, beyond pointing to the order in which it should be pursued. Our ordinary bush fruit, the *raspberry*, &c., may take the lead in autumn pruning; to which may be added the *vine*, where grown outdoors. Snowy or frosty weather may arrive shortly, and as this is generally a bar to ground-work, the common orchard pruning may be proceeded with, which in general consists in what we may term wholesale pruning, the knife being not unfrequently exchanged for the bill-hook or saw. The details or maxims of such pruning will be found in back numbers, and there will be occasion to advert to them again shortly. To observe further on the general policies of pruning matters, we may say that, immediately on the heels of Christmas, what is termed "spring pruning" must commence. The *pears*, the *plums*, the *cherries*, the *apricots*, the *peaches*, and the *nectarines*, will soon begin to act as harbingers of another spring, by an evident increase in the size and character of their buds. The stone-fruit here alluded to presents a difficulty in the way of autumn pruning; it is difficult in November or even December for the most practised eye to distinguish clearly between the wood-buds and the future blossom buds. This difficulty is greater with the young wood than with the old spurs; for let it be well remarked, that many *pears*, *plums*, &c., in the event of the previous summer having afforded much solar light, form very nice blossom buds on the annual shoots; this is also partly dependent on habit. Among pears, the *Marie Louise*, the *Passe Colmar*, &c., generally evince this disposition; but how seldom the *Winter Neilis* and the *D'Aremburg* section! Again, in cherries, the *Morello* is notorious for this habit, but we may seldom find the same tendency in the *Bigarreau* section. Amongst plums, too, the *Black Damascus*, the *Precoce de Tours*, &c., exhibit a similar tendency; but we do not find the same disposition in the *Greengage*, the *Golden drop*, &c. Thus, it will be manifest to the veriest tyro, that a distinction thus founded arises; to say nothing of the policy of prefering one piece of business to another during emergencies.

We have said enough, now, to show what we did indeed principally intend at the commencement of this paper, viz., that at this important period—which, although a period of comparative rest to the vegetable kingdom, is by no means so to the horticulturist—a regular and systematic survey of gardening matters must take place; and that the amount of labour necessary, together with the necessary anticipations concerning the weather, must be allowed to have their full weight in forming the resolves which should guide the series of operations during the dormant season. It need scarcely be urged, we presume, that the timing of business according to the weather is one of the great secrets of gardening. Who plants with a hot sun and a drying wind? Who prefers digging when snow is on the ground? Who waits for a wet day to soil his celery, or to tie his endive? Let all young beginners well understand that the proper timing of business in horticulture is not only a matter conducive to the success of the operation in question, but a great economizing of labour in the end. And herein is the point where experience tells—where the old gardener frequently beats the young one. Amongst all the professions—although some of our friends who do not set foot in a garden once a month may smile—there is none that requires more forethought than gardening; and we really do not see why one of these sons of the spade should not be as anxious and as much interested about his vines, pines, peaches, &c., as the great diplomatist over his negotiations, on which the fate of empires is supposed to hang.

R. ERRINGTON.

THE FLOWER-GARDEN.

AT the close of my last communication, I incidentally named the white variety of the horse-shoe geranium; but a *white scarlet* geranium is too great a novelty to be passed over, as the first link in a shaded bed. This white geranium is nearly as old as any of the wild species, but is an accidental seedling, I believe. According to our present notions, the size and shape of this flower are not much to boast of, certainly, but they are pure white; therefore, like other plants which are not to our fancy, we must raise many seedlings of it to procure improved forms. It seeds of itself, as freely as the mignonette, and will soon procure us a new race for shading. I have it already in the honourable position of grandmamma, but the third generation have not yet hoisted their colours. I have two beautiful light coloured ones, however, from the second cross of it with *Lucia rosea*; one of which is a fine soft cream colour, and a good house-plant, especially in the spring and autumn. I have not the slightest doubt but we shall soon have pure white geraniums of the scarlet breed, with trusses of bloom as large as any of the scarlets we now possess, and fine-shaped flowers too; and not only that, but during the progress of our experiments in crossing, several useful shades will come on the stage, and thus realise the dreams of some of the don flower-gardeners for the last seven years. The greater the number of those who will engage in these experiments, and lend a helping hand, the sooner the desired result will be accomplished. But, in order that we may work in concert, I may as well give the properties of a flower of this class, so as to come within the requirements of the flower-gardener.

The true geraniums are hardy border plants, with regular flowers—that is, the fine petals which make up a single flower are all of one size and shape, so that when put together they form a cup, with the edge as regular as that of a china tea-cup. The pelargoniums, or florists' geraniums, have irregular flowers, owing to the two back petals in their flowers being much larger than the three lower ones, and the scarlet geraniums have also irregular flowers, owing to a contrary arrangement. In these, the two back petals are much narrower than the three front ones, so that each section is characterized by well marked features, which any person can understand at first sight. Therefore, no matter by what names we distinguish these sections from each other, either of them must stand clear of the other two; and so they do naturally, for they will not intermix by their pollen. The florist and the flower-gardener take it for granted that their respective sections branched out originally from the true geraniums, and in doing so lost the best feature of the parent-stock, just as often happens to colonists of our own family when they depart from the "wisdom of their ancestors." Now, these worthies—I mean the florist and the flower-gardener—endeavour to improve the character of their respective breeds by turning the shape of the flowers back as much as possible to that of the original type—that is, to a regular form; and they have been so successful already as to reproduce true geraniums out of the pelargonium and pelargonium sections. The florist, by getting up the size of the bottom petals of his flowers to that of the top ones, and the flower-gardener, by enlarging the top petals of his section to the size of the lower ones, and all this time good cultivation or good feeding, produced a corresponding improvement in the substance of the individual petals. Consequently, a good round shape and full substance are the two first essentials in a scarlet geranium, and unless the two top petals are nearly as large as the three bottom ones, the flower is not the right shape. A great many of the most fashionable scarlets have an awkward way of rolling back their top petals, and you should never cross from a seedling of this habit, unless the colour is very peculiar, and you want to follow it out at all hazards, trusting to a better shape in a future generation The third character is that of the truss; it should stand well up above the leaves, but not so far as to reveal them. *Tom Thumb* is very awkward in this character—its flower stalks are too long; and if a large plant of it produced a score of trusses in a pot, they would not hide a single leaf from the view, so that in it two masses of colour—green and scarlet—vie with each other; whereas, if the footstalks were shorter, the scarlet could only be seen with here and there a glimpse of the green leaves. This summer there were two boxes full of *Judi* on one of the terraces here—each box ten feet long, and nearly a yard wide—and for three or four months you could only see a glimpse of the leaves here and there, just enough to relieve the intense brilliancy of the flowers. The plants were in the same soil for the last four years on Harry Moore's plan; yet, seven or eight trusses of Judi would hardly make one truss of the size of that of Tom Thumb, so that a seedling may furnish an immense truss, and yet not form so rich a bed or basket as another with trusses half the size; hence the reason why I recommend footstalks sufficiently long to elevate the flowers only to the surface of the foliage. The next essential character in these seedlings is the shape of the truss and the disposition of the flowers. At present, the trusses of these scarlets are of two forms—the flat and the globular. Those with flat trusses, or bunches like the flowers of the elder, make by far the best bedders. as that form of flower covers more space, and hides the leaves more than the globe flowers. *Shrubland scarlet*, *Compactum*, and *Gem of scarlets* ("let out" last spring by Mr. Ayres), are the three best globular-flowered ones we have. The *Compactum* is the least capricious of the three as to soil, and I fear the *Gem of scarlets* will not do here; the flowers are set so close on the truss that they cannot expand properly without strong soil; but where this variety will succeed, as I think it must on all heavy or damp soils, it will turn out the best bedding one we have after *Punch*, which, however, will only succeed on poor light or gravelly soil. *Punch* having a flat-headed truss, twenty of its trusses, or single flowers, will cover as much space as thirty or forty of those of the *Gem of scarlets*. The flowers of the Gem, individually, are the smallest of all the scarlets I know, and I think I have seen all of them that are worth culture, but the trusses are immensely large, and every flower has a distinct white eye; the footstalk is nearly as long as that of the Shrubland scarlet, and altogether is a most beautiful thing. *Royalist* is the next best bedder, and is more likely to suit different soils than many of the new ones. It is a well-marked horse-shoe, with very large trusses, which are intermediate between the globular and flat-headed ones. It was sent out last year by the late Mr. Conway, and I mention it to exemplify the three prominent forms of truss in this section of geraniums, and also to explain the reasons I have for recommending such and such characters in seedlings, these reasons being all founded on usefulness rather than on any whimsical fancy; and let us now recapitulate them.

Flowers as nearly cup-shaped as possible; the two back petals to be as broad as the three front ones; the truss to be flat on the top, and the flowers set loosely on it; the footstalk not to be longer than merely to raise the flowers free from the leaves; a small truss to consist of from 50 to 60 flowers, and a large one double that number; shade of colour mere fancy—anything from pure white to dark scarlet will find a place in the flower-garden.

These scarlet geraniums were in their prime at the end of October, but a selection of names from among them will not be worth much, as many of them vary exceedingly on different soils. The next class of geraniums for flower beds is composed of various sections, which the florists, in their impatience, have been foolish enough to discard. They are everlasting flowerers, or hybrid perpetuals, as we call them here for distinction's sake. Some of them make splendid beds, and a good assortment of them were in full beauty at the time of taking these notes—the end of October. *Diadematum* and *Diadematum rubescens*, with *Unique* and *Lady Mary Fox*, struggle on the very point of my pen for preference; and there are more candidates of equal merit; but, like other things which are swayed by fancy or taste, each of these bedders will have its admirers, and some will prefer one, and some another. Perhaps it is not fair to put up *Unique* in competition as a candidate for favour, as it stands alone in the endless varieties belonging to this family in colour and richness of tints. The florists, with all their "rules of art," have never been able to obtain so rich a purple as that of Unique. Yet, of all the geraniums, this has less cause to boast of high lineage, having descended from a little insignificant weed (*Capitatum*) with pale lilac blossoms. Mr. Wood, a friend of mine, writing in the *Gardener's Chronicle*, first recommended *Unique* as a bedder, where he offered a great indignity to her majesty the *Queen of Portu-*

gal, who is Unique's only sister, by confounding the two together. If they were twins, however, they could not be more alike, but the *Queen of Portugal* is of a stronger constitution, and would cover a space in three years which *Unique* would hardly cover in six, as I have long since proved on the conservatory wall here; but as *Unique* flowers down to Christmas, and the *Queen of Portugal* is generally over by the end of October, we prefer Unique for the wall; but in seven years it has not attained the height of five feet. The principal bed in the centre of a fancy parterre garden here is planted with *Unique*, and edged by a band of the *Golden Chain* dwarf geranium, about ten inches wide; and were it not for fear of being thought that I used too much freedom, I could give a fine history of how the ladies expressed their admiration of this arrangement. I am less scrupulous, however, about telling what gentlemen said of it, and I heard one of the best English amateur planters say that "the effect was inimitable." *Lady Mary Fox* has not been long used for beds, but some prefer it to *Unique*. It is an orange scarlet, with dark marks in the upper petals, flowering most freely from May to Christmas; and at Madeira I have no doubt this, and half a dozen others in this section, would flower all the year round. Those who are old enough to recollect a geranium called *Ignescens major*, some twenty years back, will have no difficulty to understand what a brilliant one *Lady Mary Fox* is, when I say that it is twice the size of the *Ignescens*, with the same colours; but to show how little encouragement is given to originate such beautiful things for our flower beds, Mr. Dennis, of the King's Road, Chelsea, advertised this plant for the first time, only two years since, at six shillings the dozen, while trumpery pelargoniums, that you can hardly get to bloom well for three weeks in a whole season, were selling at two guineas a-piece. Now, the reason of all this must be, that the florists keep their fine things constantly before the public by their books and advertisements, so that they are thoroughly known; while flower-gardening, as an art, has never yet been taken up by any one. Formerly, the flower-garden was left for the foregeound pictures of landscape gardeners, where docks, rushes, and gilliflowers, might mingle together; hence flower-gardening is considered to come within the province of the landscape painter. But flower-gardening, as practised in the present day, is a total mystery to the mere landscape painter; and no wonder, seeing that it has no more relation to landscape gardening than poetry has to prose; and both are distinct from the profession, which only aims at teaching the uninitiated how to cull the best flowers, and sow the gayest annuals for the domestic flower-beds. D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

CINERARIA.—This genus belongs to the natural order of compositæ, or starworts, and to the 19th Linnean class. It, therefore, bears some resemblance to the common and the ox-eyed daisy, the groundsel and the ragwort; though, unlike them, we have as yet failed in raising double cinerarias. The family name is derived from *cineres*, ashes, in allusion to the soft whitish matter that covers the surfaces of the leaves in many of the varieties. The greenhouse species were partly introduced from the Cape of Good Hope, but chiefly from the table-lands of Mexico. Though thus placed within the tropics, the cineraria in its native wilds would be exposed to a temperate and somewhat changeable climate, owing to the highly elevated plains, and the still loftier mountains, of its native countries; but from the impatience of frost which it manifests, it is not likely it ever knew anything of the icy king until it became a denizen of this changeable climate of ours. As with us the whole family grows the most luxuriantly in autumn and spring, we should be inclined to believe that it flourished most at home in places not fully exposed to the mid-day vertical sun.

It is only within these few years that the cineraria has come under the improving auspices of the scientific florist. Perfection, as yet, is far from being gained, but many thousands are raised from seed every year, far superior to the narrow-pointed-petalled, starry-looking things of our younger days. When *King* made its appearance about a dozen years ago, it was looked upon as a world's wonder. Now, such a beauty would be considered by the regular growers as no beauty at all. Times change, and men and measures, manners and ideas, change with them. All the better, if change is identified with good—is symbolical of progression, and not of retrogression. We believe that in everything improvement has been, and is being, made. Every appearance to the contrary, over which the morbid ponder, is just the receding ripple of the wave of the onward flowing tide. With the taste for a higher form of beauty in the flower, came also improved systems of cultivation and management, and not before they were needed. We can recollect when once or twice a year the poor cinerarias were taken to the potting bench, whirled out of their pots, their matted roots sliced off with a sharp knife, with much apparent consequence and gusto; and then when, after potting again, a straggling mass of foliage densely covered the pot, and a few thin flower-stems, decked here and there with a starry stray blossom, met the eye, the operator thought himself amply repaid for his cleverness. Considering what *we* have done—what wonderful people the next generation will be! Great men we are vain enough to think ourselves at times—they will be Goliaths upon giants' shoulders!

Those who intend forming a collection cannot do better than state their wants, and the money they wish to spend, to any one of the nurserymen who grow them largely. This plan will always suit sellers and purchasers best, where no particular variety is required. From a sixpenny packet of seed you may raise many beautiful things, but then it would be of little use sowing it until nearly midsummer—next season—and thus a season would be lost. As a guide in selecting, or in retaining what you have raised, we may mention that the flowers, whether large or small, should be compact and circular, the disk or centre small, the petals of good substance, well rounded at the points, expanded horizontally; if curved at all, bending inwards, or inflexed—instead of reflexed or deflexed—that is, bending back; so that the blossom, if not flat, may have slightly the appearance of a cup. Colours, if more than one, clear and definite, though many shaded ones are very beautiful; flower-stem stiff and strong, supporting a large flattish head or corymb of blooms; leaves small and middle sized, instead of large. As to the habit of the plants, a few tall, more medium size, and most of all dwarf. The following approach such characteristics, and though not new nor expensive, are still very pretty:—Alboni, white and pink; Beauty of Newington, white and tipped with crimson; Beauty of St. John's Wood, crimson and white; Celestial, light blue; Countess of Zetland, red; Coronet, white and purple; Cerito, white and lilac; Compacta, similar to Old King; Diana Vernon, purple; Emperor, rosy crimson; Fair Rosamond, white tinged with pink; Grand Master, white and crimson, colours pure and distinct; Sapphire, deep blue; Royal Crimson; Lady Peel, lavender; One in the Ring, white tipped with purple; Zenobia, dark purple. Those who would aim at doing great things by hybridising next season, should obtain Henderson's Pauline, shaded crimson, large and fine; ditto Adela Villiers, white tipped with crimson; Kendall's Richard Cobden, bluish lavender; and other novelties.

The improvement in the cultivation of the cineraria commenced when, instead of shifting and repotting in the manner alluded to, a system of dividing the stool, or, better still, growing the suckers or young plants that were plentifully produced from it, was resorted to. To effect this object most easily and successfully, no better plan can be adopted than turning the plants out of their pots into a bed in the open air, say in the beginning of June, planting them rather deep, surrounding the ball with light rich soil, watering them well then, and afterwards, when necessary, shading with a few branches at first, and then dividing the stool; or, taking the best suckers separately in August or September, and either planting them in a preparatory bed to be taken and potted in October, or potting them at once, and shifting when necessary afterwards, using rich light soil.

From suckers thus obtained we have had plants in the succeeding March and April, with huge heads of bloom, growing in twelve and sixteen-inch pots; but after Christmas they were pushed on by plunging them in a mild bottom heat, and the temperature of the air seldom below 45°, with plenty of ventilation. For general purposes, a six-inch pot will give a very pretty useful plant; and in the case of seedlings a four-inch pot is quite large enough, as it can be assisted with manure water after the flower stem appears. As the cineraria presents few attractions during the summer, it is of little use sowing the seed before May or June, as then, if you wish it, the plants will be early enough to flower in winter and spring. The seed should be saved from the best varieties, and if carefully hybridized all the better. Where no particular object is aimed at, hybridization will be effected in placing the desirable varieties close together, and shaking their heads of bloom amongst each other. If even the collecting, and storing, and labelling of the seed is too much trouble, that too may be got rid of by turning out the plants as we have advised above before the seeds have dropped, and, after planting, spread some fine light soil on the surface, and the seeds are so accommodating that they will sow themselves, and thus you may raise and pot suckers and seedlings at the same time. Do not be disconcerted, however, if some more enthusiastic neighbour should *look* the statement that such a system was more in accordance with the *past* than the *present* practice.

If, by some oversight, your cinerarias are still in the blooming pots of last spring, we would, upon the principle of "better late than never," divide some of the stools, and pot off the suckers even now, which, if assisted with a mild bottom heat, will make nice plants for late spring blooming. The others, left as they are, will come in early. Mind, however, that the cineraria, delighting though it does, *when growing*, in a moist atmosphere, will have nothing to do with a stagnant one. Young plants will keep beautifully over the winter in a cold frame or pit, provided they are kept rather dry and stunted, until after Christmas, by withholding water, and giving plenty of air. They will thus stand a low temperature, but nothing below 32°. If inclement weather, of a week or ten days' duration, should take place, there will be danger in such circumstances, not from *frost*, for that you may keep out by covering, but from *damp*, if you cannot give air. This danger will be all the greater if your plants have commenced growing, as then the tissues will be more soft and tender. In such circumstances, every opportunity should be taken to open the sashes, even though previously to doing so you might have to place in the pit or frame sundry large bottles filled with hot water. With the exception of such circumstances as these occurring, the plants will be more healthy and luxuriant in pots or boxes than when set upon shelves. If the plants are small, it is an easy matter to push them on after February, with a mild bottom heat, until they show flower, as after that period we seldom have storms that would render long covering-up necessary. Those showing bloom *now* should be transferred to the window or greenhouse, and set in saucers. Those placed in the greenhouse to grow should be accommodated at its warmest end, and would thrive better if placed on slates instead of wooden shelves. If not set *over* water, as recommended for the calceolaria, the shelves should be frequently syringed to keep the atmosphere moist. A medium temperature of 45° will answer admirably. A dash from the syringe over the leaves will help to keep them clean. Water alternately with clear and manure water after the flower-stems appear. Fumigate with tobacco at the first appearance of green-fly. Robert Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

Having, in preceding numbers, pretty fully and minutely described the kind of house we think best adapted for growing orchids, we now shall turn our attention to the second part of our subject, namely, the various methods of cultivating them: 1st, in pots; 2ndly, in baskets; and thirdly, on blocks; describing the proper soils for the two first, and the best kind of wood for the last. In directing what should be done with newly-imported orchids, we slightly, in some instances, anticipated this part of our subject, particularly the preparation of peat for potting. This point is also alluded to in the routine work for October, page 20, of this volume. Still, we consider the proper preparation of the compost to grow them in of such importance, that we conceive it our duty to the young or inexperienced-cultivator to consider the subject more fully.

Proper Kind of Peat.—The best, perhaps, in the whole kingdom, is found in the neighbourhood of Exeter. This peat is composed chiefly of the fine roots of grasses and bog-rushes: it is brownish, light, and porous, having very little of that black unctuous substance which is called "soil" amongst it; neither does it contain much of decayed sphagnum, or bog-moss. To use a homely comparison, it is something like compressed shag tobacco. So well do orchids thrive in this peat, that several of the large growers round London are in the habit of sending for it even to that distance; but we can scarcely expect small cultivators to go to that expense. In various parts of the country there is plenty of peat, though not exactly so good as the Exeter kind, which, with a little labour, first, in choosing the nearest like to it, and secondly, in manufacturing it, if we may be allowed the term, that the kind so chosen may be made still nearer to approach the best in its consistency. Therefore, we need not despair growing orchids in pots well and efficiently in peat from any neighbouring moor or common. Choose a very fibrous peat: this will generally be found close to the surface, and not more than from one to two inches thick. Reject all turves that are composed chiefly of soil, at least for this purpose, though such are of the best quality, if mixed with white sand, for Cape Heaths and New Holland plants, or even for American plants; so that in procuring the best soil for the last-mentioned plant the cultivator will have a good opportunity to select the best turves for his orchideæ. Having met with some that answers nearest to our description of the kind at Exeter, let it be kept in a shed till it is tolerably dry; then chop or break it into pieces the size of a man's fist, and with a broad-headed hammer beat it till the fine soil and the fibre separate; sift it through a fine sieve, and it will appear of a rough, light, and open texture. If, on experience, you find it still runs together again and forms a close mass, retentive of moisture, then mix with it broken potsherds and small chips of oak or ash, or even willow. These will keep it open, and let the water pass through.

Orchids for Pots.—The operation of *potting* we have sufficiently described in the 54th Number, page 20, and to that place we refer our readers. When we give the list we promised as the 5th head of orchid culture, we shall divide it into those that grow in pots, in baskets, and on blocks. In this place it will be sufficient to state, that of Bletias, Brassias, Calanthes, Cattleyas, Cirrhœas, Cycnoches, Cymbidiums, Cypripediums, Cyrtopodiums, Dendrobiums, Epidendrums, Houlletias, Lycastes, Maxillarias, Miltonias, Odontoglossums, Oncidiums, Peristerias, Phaius, Sobralias, Warreas, and Zygopetalums, the greatest number will thrive best, or at least as well, in pots, as by any other method. There are some exceptions which we shall note presently.

Orchids in Baskets.—A considerable number of species require baskets, because the flower-stems are pendant, and, consequently, naturally require a position to allow the flowers to grow down. In fact, some send the flower-stems perpendicularly down through the soil or compost. Now, if these are grown in pots, the flower-stems run down into the soil and there perish. It is true, they have been grown in pots on a hillock built up six inches or a foot above the rim of the pot, and then part of the flower-stems manage to find their way to the outside of the little mound, but a considerable number descend straight downwards, and soon rot for want of air and light. By growing them in baskets, this evil is prevented, and every raceme (bunch) of flowers arrives at perfection. This way of producing flowers —just the reverse of all others—peculiarly shows that these highly curious and magnificent flowers must grow on branches of trees, or it would seem that nature had done something in vain by creating flowers that, did they grow on the earth, would mostly perish without ever being seen. But, conceive them growing on the forked branches of trees, or the clefts of rocks, the whole plant being on the outside; and we then perceive that the mode of flowering is not so preposterous as it would be were these strange plants terrestrial, for the flower-stems easily find their way round the branch of a tree, or down the sides of a naked rock. We may conveniently divide basket plants into two classes; first, those that require peat or compost; and secondly, those that require sphagnum or bog-moss. The first class contains the larger number. As we do not intend to anticipate the catalogue of the best orchids intended to form the 5th part of this essay, we shall only here just mention the genera that require peat and baskets. They are *Stanhopeas*, which we name first because of the great number in the genus, and because their mode of florescense peculiarly points them as requiring this method of growing; *Acinetas*, *Acroperas*, some *Dendrobiums*, *Gongoras*, and *Lacænas*.

The baskets should be of a size suitable for the plants—small ones requiring only small baskets, middling ones the middle-sized, and large ones in proportion. The way to basket the plants is this. Have the peat or compost prepared exactly as for potting above mentioned; cover the bottom of the basket with a thin layer of moss—green would do, though we prefer white or sphagnum. This moss is to prevent the peat from dropping through the openings between the rods forming the bottom. Then place a portion of peat upon the moss. In the next place prepare the plant by taking it out of the old basket or pot, or perhaps off from a log. Do this as carefully as possible without injuring the living roots. If the old peat, in which it has been growing perhaps for years, is very hard, and the living roots are so firmly attached to it that they cannot be detached without breaking them, take the plant and put it into the cistern, and let it remain there till the peat is thoroughly soaked. Take it out, and set it in some convenient place to drain off the water. If this is done a full week before you intend to rebasket the plant, it will be all the easier to do, the object being to soften the peat so as to be able to pick off with a small-pointed stick as much of the old peat as possible. Examine also the pseudo-bulbs and leaves, and clean them thoroughly from dirt and insects. Prune away all dead roots, and then the plant will be ready to be put into its new habitation. Place it in the middle of the basket, and fill in all round it with the new compost. Set the basket then on the floor, and, with the syringe held pretty close to the peat, give it a good watering, forcing the water out of the syringe pretty strongly: this will be found to make the compost firm, so that future waterings will not wash it off the basket on to the floor, or plants underneath. One thing we would especially guard our readers against, and that is, having the baskets made deep. Some may have an idea that if the plants have a large lot of stuff to grow in they will thrive better and produce more flowers, but this is a mistaken notion. The roots of orchids of this class run on the surface, or, at least, very closely beneath it; in truth, if the air is properly surcharged with moisture, the roots will prefer running out of the compost. Frequently the long roots of *Stanhopeas*, that push strongly, and run along the surface of the compost, send forth fibres not into the compost, but, strange to say, upwards into the congenial air, gathering, as it were, aerial food, to support and feed the plant they belong to. This proves satisfactorily enough that deep baskets are no advantage even to the growth of the plant, but to the flower-stems of some kinds of Stanhopeas they are certainly injurious. We say *some kinds*, such as *Stanhopea* *insignis* and its varieties, *S. tigrina* and its varieties, and all that have, like these, short and few-flowered racemes. Such kinds as *Stanhopea oculata*, *Wardii*, and *quadricornis*, which have long flower-stems, may find their way through a deep basket, but would do so easier and safer through a shallow one.

FLORIST FLOWERS.

THE PANSY.—Last week these flowers were noticed, and the culture needful for this season. A promise, also, was given that this week a descriptive list of some new, or unknown, fine varieties should be published: they are the following, which we noticed during a visit to Edinburgh about the middle of last August: we saw them in the garden of Mr. R. Grieves, Kaimes' Cottage, St. Catherine Sibberton, about three miles from that city. Mr. Grieves is an amateur, who cultivates florist's flowers very successfully, but especially hollyhocks and the flower at the head of this article. His pansies, a large collection, were in excellent health; numbers of them were in fine flower even at that advanced season. One in particular attracted attention, and this is a seedling of Mr. Grieves' own raising: it is named *Francycle*, dark purple ground, golden eye belted round it with blue, of a good substance in petal, and of a large size and excellent form. The others are *Magnificens*, dark blue ground, colour beautiful, edged with white, of good substance, fine form, and large size. *Miss Annie*, a dark self, with yellow eye, large, and fine form. *Miss Wedderburn*, blue, edged with white, yellow eye, fine form. *Marchioness*, yellow shaded, with bronze blotch, good form; a singular fine flower. *Psyche*, pale rose ground, cream-coloured eye, good shape; a beautiful medium-sized variety. *Clarencia*, light blush, broadly edged with white, a good yellow eye, fine form, and good substance. *Delight*, white ground, lemon-coloured eye, rather thin, but a well-shaped flower. *Princess*, crimson ground, and white eye; a flower of good substance, well formed, medium size. These are all worth the florist's attention, and may be procured from Mr. Grieves, who disposes of his surplus stock at very moderate prices.

T. APPLEBY.

THE KITCHEN-GARDEN.

BEANS may still be planted in sheltered situations or on the sides of sloping banks, &c. The early dwarf kind of Mazagan is about the best to plant at this season. As soon as they make their appearance above ground, assist them by shaking a little dry dust amongst them; or they may be planted thickly together in some sheltered corner, so that they may be ready for transplanting after Christmas.

CARROTS should be all taken up by this time, as they will get no good by remaining in the ground now.

CAULIFLOWERS.—Those that are pricked in pits, frames, hand-glasses, or pots, must be frequently hoed to prevent the soil becoming surface-bound. Keep them also well cleared from decayed leaves as well as slugs, and take care that those in pots do not suffer for the want of a little water, or they may otherwise be apt to button in the early spring. The cauliflowers now coming in should be daily examined, and those not actually required for present use should be stored away, as already directed, for late winter consumption.

LETTUCE PLANTS in all stages of growth should be kept quite clear from decayed leaves, which, if suffered to remain, afford so sure a harbour for slugs. Apply a little dry dust occasionally about them, which is a great assistance at this time of the year, and surface-stir the ground in suitable weather.

ONIONS.—Stored onions should be looked over, and all those decaying or showing symptoms of growing, should have those parts cut out. *Potato* or *Underground onions* should be planted, and the autumn-sown crop should be kept free from weeds and leaves, and have also an occasional dredging of dry dust.

SALSAFY AND SCORZONERA may now be either taken up and stored in sand, or the surface of the ground may be mulched, and these vegetables be allowed to remain and be taken up as required.

EARLY PEAS may now be sown on dry well sheltered borders by those who have plenty of space to spare; but to make sure of an even thrifty crop, it is quite as well to defer this operation until the middle of January, when they may be sown on turf, cut into narrow strips, placed under shelter, and planted in rows in the month of February, slightly sheltering them with small furze, spruce fir, or other evergreen boughs, and dry dust.

YOUNG CARROTS AND RADISHES IN FRAMES.—Those already up should be duly thinned, surface-stirred, and dusted; and to keep them healthy as well as to prevent their *shanking*, let them be judiciously aired, both night and day, as we have previously directed.*

CUCUMBERS.—Sow in succession, and let those plants already up and growing be duly stopped at the first joint, keeping those shoots cleared away which may be produced at the base of the seed-leaf, allowing the centre or principal shoot to grow three joints previously to its being again stopped, by which time the plants should be turned out into their final place. The side shoots next breaking may be so trained as to cover a trellis in a frame, pit, or house, and should be stopped at the second joint. By the time that the next shoots have started into growth, the plants, if judiciously managed, will have become strong enough to bear fruit, which will then be seen showing in abundance. Care should at once be taken to stop the shoots at every fruit-showing joint, though there is great judgment required in attending to this rule, as much must depend, in carrying it out to its full extent, upon the strength and vigour of the plants. Under these circumstances, however, the fruit, as soon as it shows, should at all times be very carefully and judiciously thinned, so that the plants may not be impoverished with a number of deformed ill-grown cucumbers.

MUSHROOM BEDS.—If exposed to out-of-door culture, apply now some fresh litter, and give protection by thatched hurdles to ward off the wind and the rain. The litter should be turned over occasionally, to prevent the spawn from running into it. Those beds that have been for some time bearing freely should get liberal waterings with clarified, tepid, liquid manure, brewed from cow, sheep, or deer-dung.

PLANT POTATOES without delay in dry weather. Allow them plenty of room, say two feet from row to row, and ten to twelve inches from set to set in the row, and, when sufficient width is dug for a row, strain the line down, and chop out a trench with the spade six or seven inches deep; plant the sets, and commence digging for another row, and so on.

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* *Shanking*—decaying near the surface of the ground.

Leaves.—Be active in collecting together all the leaves in a tidy way for future uses; either for mixing with other fermenting substances for hot-bed making, littering the pigstye, or for covering up *sea-kale*. Of this some should now be begun to be forced as before directed. The quantity covered up depends upon the supply required. The kale should always be covered up when thoroughly dry, that is, on a fine day. Cover it up with a mass of leaves enough to raise a temperature of about 55°, but never to exceed 60°.

Brocoli.—Let those who have not laid in their brocoli, and yet wish to save it through a severe winter, do so at once.

Rhubarb.—The roots of as many plants as are thought sufficient to give the required supply for winter forcing should now be potted, or planted in boxes or tubs as before directed. Let all be placed in some snug corner where they can soon and easily be covered over with straw, leaves, or anything else to protect them from severe weather. By potting the whole *now*, the plants will be getting well established, and ready when wanted to bring in a pot or two at a time into the warm cellar or forcing-house.

Routine Work.—Give plenty of air to *cauliflowers* under hand-glasses, or in pits, or frames, by taking the lights quite off during all fine days; remove all decayed leaves and stir the earth often about them. See that the *out-door carrot beds* are not choked up with fallen leaves or weeds. Let all beds of winter *spinach*, *lettuce*, *onions*, and young *cabbage plants*, be often similarly attended to. Also look over *brocoli*, *borecoles*, *savoys*, and *cabbages*, that have been laid in for winter use, and remove all decayed leaves.

James Barnes and W.

MISCELLANEOUS INFORMATION.

OUR VILLAGE WALKS.

(No. 7.)

Country life is full of interest and variety. There is always something to observe, and admire, and remark upon; and "village walks" lead us to see and think about many things besides trees and flowers, for they do not bring us down to one given subject, but allow us sometimes to branch off into other matters connected with the soil, and so now I am going to talk a little about cottage allotments.

In my neighbourhood, a portion of land is let in this way to the poor: it consists of about five and twenty acres, and each allotment averages a quarter of an acre, but some are rather large, and some a little less. The benefit derived from this system is very great; almost all the tenants—certainly *all* the poorest—say they must have gone to the Union, or have been starved, had it it not been for their potato land; and even since disease has smitten that most useful root few have been behind-hand with their rent,—none have given up their land, and many are wishing to obtain some. Their contentment under the evident judgment of God is beautiful, and instructive to their richer neighbours. The farmer too often murmurs; but the cottager, in *every* instance, thanks God that he has not been a greater sufferer, and fully recognises the hand that gives and withholds the increase. The cottage allotment system is a strong and beneficial bond of union between the poor and the rich—it is surprising how it links them to those whose tenants they are; and so many little acts and words of kindness are called forth on the part of the landlord, and he has it so much in his power to do good, and also to exhort, admonish, reprove, and commend, that even the welfare and good order of a village may be greatly influenced by its means. As a proof of its good effects on one occasion, I will mention a circumstance that occurred during the unfortunate riots of 1830. The mob visited the house of a gentleman (who then possessed the allotments to which I have alluded) in common with all the rest of the neighbouring residents. Those of the parishioners who held his land formed a band, and surrounded the house, declaring that, whether money was given or not, not a window should be broken, or one of the family unnecessarily alarmed. In the excited and lawless state of the people at that time this was a pleasing proof of their gratitude towards those who endeavoured to do them good. If every landed proprietor would set apart even one very small portion of his land for cottage allotments, he would be doing a great deal towards helping the poor, and relieving the burden of the rate so often bitterly complained of. Much good sometimes results from small beginnings and simple means; and if every work, however trifling, was "begun, continued, and ended" in God, striking and important effects would inevitably ensue; for, "not by power, nor by might, but by my spirit," he has declared to be the way in which great things are done. In one special case I *know*, that a man given to drinking applied for an allotment, the answer was, "We never encourage men who drink—we cannot suffer such to hold our land." The man affirmed that the surest way to wean him from this evil habit was to give him a piece of land to till. The plea was felt to be one of some importance; and, conditionally, the land was given to him. Since that time no instance has been known of his offending in that way, and for some years he and his land have prospered. This is by no means a solitary instance—many allotment landlords have experienced the same good results; and many men who have been accustomed to go at times to the beer-house, without actually gaining the dreadful character of being given to drink, have left off that perilous habit, and spent their leisure hours in cultivating their useful bit of land. As a benefit to the bodies of men the allotment system is an excellent one; but it may be a means of doing unspeakable good to their immortal souls. Very much of outward evil may be discouraged and put down by managing this interesting tenantry *religiously* as well as kindly. How fully a landlord may become acquainted with their "short and simple annals,"—and how much advice he can give,—how much religious principle he may instil, as he listens to their joys and sorrows! The passions of men are everywhere the same: they burn as fiercely about a neighbour's stray donkey, or a furrow of ground unfairly taken in, as about an invaded kingdom, or an insulted crown. We are all partakers in the Fall; and if God's commandments are enforced, and brotherly love promoted, among the very lowliest of men, as great and as glorious a work is accomplished as if we had mediated between Turkey and Russia. Let landed proprietors consider this. Even among farmers much may be done by a wise and religious land-owner; but among village tenantry—among the cottage gardeners—incalculable benefit may be conferred; and the interest of watching over them is great, and ever increasing.

In villages, cottages are frequently built without one morsel of garden attached to them—as if landlords considered only the shelter, and not the subsistence, of the poor. High rents are demanded, and the occupiers have no way in which to supply themselves with food, except at "the shop," where they either pay dearly or not all. Even where gardens exist they are seldom large enough to raise potatoes enough for the family use, where nothing but bread is attainable besides; and therefore, under all circumstances, a piece of land is a real blessing to the cottager, in every light in which we can possibly view it.

I do not know a more pleasing, gratifying sight than cottage allotments present during the busy seasons—autumn, for instance. The digging up, or harvesting the crops,—then the ploughing and cleaning, the sowing and planting after that again,—keep the little colony in a perpetual buzz, and gives employment to every working member of the poor man's family. One of the first harbingers of spring, too, is a labourer, with his fork and wheelbarrow, going to "the ground," as they all call it; and then very speedily it becomes full of activity, and fertility, and sweetness—nothing is sweeter than the fresh-turned earth. How the very labour of man tends to his health and enjoyment! "Oh! that man would therefore praise the Lord for his goodness, and declare the wonders that he doeth for the children of men!"

Many gentlemen encourage their allotment tenants by offering prizes, and giving them a dinner or a supper when the rent is paid. This system may, and probably does, work well; but let not those be discouraged who have it not in their power to do so. The system works extremely well without it; and, perhaps, evil passions are aroused by contending, and triumphing over each other, which will do far more harm in one way than good is effected in the other. Brotherly love is unlikely to continue when there is this sort of competition, and the finest and sweetest vegetables are dearly purchased by a root of bitterness planted in the heart. The marked superiority of the crops in clean and well-tilled soil ought to be a sufficient inducement to be diligent, and the careful pains-taking cottager will, in some measure at least, urge on the slothful man beside him. If a trifle is given back when the rent is paid, it will benefit quite as much, and be as thankfully received as an expensive meal, which does no real good, and excludes the self-denying mother and hungry children. Surely much might be done in this way by those who seek to benefit the poor effectually, and because they are "our brethren." There is a blessing, too, on those who consider the "poor and needy;" and let us remember that "he that honoureth his Maker hath mercy on the poor."

Large-leaved Zieria (*Zieria macrophylla.*)—This greenhouse shrub, with panicles of white flowers, is a native of Van Diemen's Land, where it is called *Stink-wood*. It thrives best in a shaded part of the greenhouse, in a well-drained pot filled with a mixture of light loam and peat. It must be watered every morning or evening in summer. It ripens seeds, and may be propagated from these or from cuttings.—*Bot. Mag.*, *tab.* 4451.

TO CORRESPONDENTS.

⁂ We request that no one will write to the departmental writers of The Cottage Gardener. It gives them unjustifiable trouble and expense; and we also request our coadjutors *under no circumstances* to reply to such private communications.

Capons (*Verax*).—We cannot admit anything upon so cruel a subject into our columns.

Hot-bed of Leaves (*Ibid*).—The leaves may be employed alone, or mixed with stable-manure, or tan. The leaves, even if mixed afterwards with the other fermenting materials, are best prepared by themselves. Mix them thoroughly with those other materials, and do not put them in alternate layers. To prepare leaves, they should be collected as they fall in autumn, and be put into a space enclosed by hurdles or other means, so that they cannot be scattered by the winds. The heap should be at least six feet thick; watered moderately, if the leaves are dry, and trodden firmly. In five or six weeks the heat they produce will be so moderated that the heap may be broken up and beds formed of it. Apply a little water to any parts which then appear dry.

Swiss Gentiana Seed (*Rev. W. Brodie*).—There are several species of Gentiana natives of Switzerland, but you do not state the name of yours. They will be safest if sown in pots of light sandy loam only, any time in March; the pots to be placed in a close cold pit; and, as soon as the seedlings are up, to have abundance of air given them. They advance but slowly, but by next September will be fit to transplant into a bed of light earth out of doors, where the slugs must be kept from them. We cannot name your plant from the seed sent.

Rhododendron not Flowering (*A Novice, Camberwell*).—You have a short rhododendron showing flower-buds, and "a tall straggling one" that does not.—You must cut back this just when you see it begin shooting in the spring; cut the side branches to within three or four inches of the old wood; and the centre shoot, if any, cut down to half its length.

Roses not Flowering (*Ibid*).—Prune your standard and dwarf roses now, and very close; that is, cut away the little spray twigs altogether, and the strong shoots cut to a couple or three joints from the old wood; then scrape away the top soil till you get near to the roots, and lay over these some rich compost—one half of it rotten dung. When they are in leaf next May water them with some strong liquid manure, and, if there is life and blood in them, they will flower abundantly after that treatment, but not so much the first season as afterwards.

Liliums (*Nemo*).—Plant your bulbs immediately; you have overlooked what Mr. Appleby said at p. 310 of our vol. ii.: "They are much injured by long exposure." Lilies of all kinds should be kept out of the ground as little as possible. Lilium bulbiferum is orange-coloured, and from 2 to 3 feet high, according to the strength of the bulb and the suitableness of the soil; Chalcedonicum, scarlet, 3 to 4 feet; Thunbergianum, red and orange, 3 feet; Aurantium, orange, 3 feet; Spectabile, light orange, 2 feet; Pyrenaicum, dark orange, 2 feet; Superbum, light orange, 5 to 6 feet; Eximium, white, 2 to 3 feet: Canadiense, light orange, 3 to 4 feet; Atrosanguineum, dark red, 3 to 4 feet; Pomponeum, red and scarlet, 3 to 4 feet; Montanum we do not know, neither are we acquainted with your hybrids—Prince Albert, Duke of Sutherland, Napoleon, Duke of Devonshire, Don Juan, and Marshal Soult, but they are all different shades of red and orange.

Old Jessamine (*Ibid*).—You cut this down last autumn, and the young shoots have grown up very numerous, strong, and some 12 feet long. Cut out a few of the weakest shoots to near the ground, for the purpose of making young wood to fill the bottom, but let the other shoots remain their full length. Cover the concrete bottom of your cold pit with coal-ashes.

Moving Wisteria (*C. C.*).—Remove your Wisteria (now 6 years old) at once; this is the best time. There is no doubt about your succeeding with the *carnation cuttings*, if you keep the damp from them; the greenhouse is the best place for them till early in the spring, when you may give them a slight bottom heat. You are quite right—things will root "at seasons unseasonable," with patience and perseverance.

Apple-trees Bearing Small Fruit (*H. M.*).—Stagnation, owing to a retentive bottom, is, in all probability, the cause of your apples being small. At all events, you will do well to drain thoroughly. Perhaps you have been digging over their roots; if so, cease for four feet from the stem; and in lieu thereof apply old manure, as top dressing, six inches thick, next April. Root-prune slightly your *Cloth of Gold Rose*, which is vigorous but blossomless, as soon as you can. This rose is apt to be over-luxuriant for a year or two after planting, if in rich soil.

Peach Not Bearing (*R. L. Thame.*).—Correspondents should always give the name and condition of a fruit when they seek information. We will shortly suggest a form of table to be used in applying to us for information. We would try rich top-dressing and hand-pruning. Our advice is not, however, obliged to be correct, for we want other data.

Pines Not Fruiting (*R. Walters, Bath.*).—No letter ever came to our office that has not been answered. You should have named the sorts of pines you grow; their age, by what system grown, &c. We wish our correspondents would indeed give the necessary data; it is but a common sense consideration. You surely must give too much atmospheric moisture and heat with too little air. Do your pines get light enough? Are they in pots; and are the pots—as they ought to be—well filled with roots? You may indeed take any half-dozen of plants, *that have been duly prepared previously*, and start them into fruit at almost any period. A certain prepared condition however is necessary; one of the first essentials of which is, that the pot be well filled; and another, that the usual excitements to growth be partly withheld. Are you sure the soil in their pots has been quite dry. The amount of dryness which a pine *will endure* is truly astonishing.

Mummy Wheat (*E. G. H., Kinsoll*).—Some one of our readers has kindly sent a few grains of this for you. If you will let us know your direction they shall be forwarded to you.

Himalayah Pumpkin Seed (*A. N. U., Birkenhead*).—Send us your direction.

Porous Saucers (*A Constant Reader*).—The saucers for flower-pots, which you obtain at Manchester, let the water pass through their pores. Try giving them a coating of hot gas tar, and then paint them.

Diseased Vine Leaf (*T. B.*).—This seems most severely attacked with mildew; but it is too dry, and we are too much in the dark as to where it is grown for us to say more.

Memoir of Clement Hoare (*A Lover of Vines*).—We shall be very ready to insert a biographical sketch of this gentleman, if those who possess the materials will send them to us.

Stocks (*R. C.*).—The annual kinds must be sown in February, but the biennial, Brompton stocks, you must not sow until May or June. The age of the moon when you sow is of no consequence. You cannot tell which seedling will produce single or double flowers until the flower-buds are well formed. If any of the double specimens happen to have any stamens not changed into petals, or flower leaves, these would be advisably employed to impregnate the single blossoms.

Worms in a Ward's Case (*A Subscriber*).—Water *the soil* with lime-water, which will either kill them or drive them to the surface, where you can catch them.

Plan for Greenhouse (*An Amateur*).—We cannot furnish you with this. You will find full general directions on the subject at p. 119 of our first volume, being No. 12.

Pea Sticking (*Rev. J. S. Lievre*).—The result of our experiments has been a full confirmation of the efficacy of the supporters of which we gave a drawing at p. 271 of our second volume; only, instead of placing them perpendicular, we find that the most efficient position is leaning inwards, so as to touch at the top, like an inverted Λ. Your other question next week. A letter passed yours.

Potato-planting (*N., Birmingham*).—As your ground "is rather strong," throw it up into ridges, and let it remain through the winter. Plant in February during dry weather, and keep your sets between layers of earth until then.

Potato-planting with a Dibble (*J. M., Dublin*).—Opening a trench with the spade, and planting the sets at the bottom of it, may be the most expeditious mode, and may be generally practised near Dublin, but it is not the best mode. It is accompanied by one or all of the following objectionable consequences: irregularity of depth, irregularity of rows, and trampling on the dug soil. We always have a sufficient space for one row dug, stretch a line across, and with a blunt-ended dibble, two inches in diameter, with a mark to show when it has been thrust in eight inches, make holes at the required distances, into each of which a set is dropped. The spadesman, or digger, fills with his spade the holes up as he follows the setter. We should indeed like to have some of your *Queen's Cluster* potatoes that produced "from 40 to 120 tubers a stalk this year." If you can send us a few we will gladly pay the carriage.

Gesnera Douglasii and Zebrina (*Lancastriensis*).—Your plants, so healthy and strong, showing flowers which do not open, will be more likely to please you in that respect if you gradually lower the temperature from 75° during the day to 65°, and at night from 60° to 50° or 55°. If you were to continue the same too-high temperature, and gave them in addition a close moist atmosphere, you would very likely get scaly tubers instead of flowers, as mentioned in the article upon the achimenes. Such heat is very proper for starting and growing, but not for flowering them. We have plenty at present in a cold house, but the frost will soon speak for them. In such a house as you have they will be very beautiful all the winter. The subject will be adverted to ere long, meanwhile see that the roots of those done flowering are kept in a temperature not lower than 40° or 45°, as if lower than that they are apt to be injured.

Room opening into Greenhouse (*W. J.*).—The back wall of the room leading to the greenhouse being only seven feet from the glass on a south aspect, is very suitable to grow camellias on, and will seldom want the aid of the greenhouse. You had better plant as many as will nearly fill the space at once any time next February or March. Being fourteen feet long, four plants will not be too many, and you can remove any of them afterwards when they get crowded. Plant the old double white, or the white *fimbriata*, the double variegated, the red *imbricata*, and tricolor or donklaeri, or you can make another selection from our former lists.

Geraniums Cut Down (*W. M. H.*).—Having cut down your plants at the beginning of October, they have sent out shoots about two inches long, and you ask whether you should root-prune and re-pot them? No; it is the safest treatment not to shake them out until the end of January; and do not disturb your *rooted geranium cuttings* until March.

Tropœolum tricolorum (*Ibid*).—After your tubers have been potted about a month, two small shoots have made their appearance. This is quite right; the more shoots they make from the bottom the better. See you not do give them much water till the trellis is nearly covered.

Dolichos lignosus (*Ibid*).—Let this evergreen twiner, as well as *Cobœa scandens*, remain without shifting in their pots, seven inches in diameter, until next March, and then move them into pots two sizes larger.

Fuchsias (*Ibid*).—It was too soon to cut down fuchsias about the beginning of October; the best way is to leave them out of doors as late as it is safe to do so without fear of harm from frost, then to cut out the green parts, and store them for the winter *anywhere* where the frost cannot reach them. Could you not get a small stove to heat your *domestic conservatory?* If not, you will have to cover the glass in very severe frost, and keep your plants almost dry.

Pegging-down Roses (*Beta*).—Your China, Tea-scented, and Bourbon roses, from cuttings of last year, had better be pegged down in March, after the winter frosts are over, as, in all probability, a few of the shoots of such young plants will be more or less injured by it, if we should have a severe winter. The plan of pegging-down roses is not, however, a good one, and less so with Chinas, Tea, and Bourbon, than with the old sorts, and the reason is this, the bent shoots will not grow any longer, and a fresh supply of stronger shoots will issue from below the bent parts, and run away with the nourishment which ought to reach the horizontal branches to enable them to bloom finely.

Tropœolum Tticolorum (*Hunch*).—Your tubers have each thrown up two strong shoots, and you need not mind that they have not come up in the middle of the pot. The "fine old Scotch gentleman," whom you name, says the more shoots which a tropœolum sends forth the better. They prove that Mr. Denyer, of Gracechurch-street, from whom you bought them, sends out creditable bulbs. Coil all that grow, and take care that the pots are not watered much till these very tiny shoots get up, and are well clothed with leaves; the tubers will supply them in the meantime with sufficient nourishment, but the soil must not get quite dry. If you water once in three weeks until the end of January it will suffice.

Leaves for Hot-beds (*Ibid*).—Tree leaves for making hot-beds *next spring* should be "in the dry" all winter, and if that is not convenient, they ought to be in thin layers, so that they neither heat or get rotten by damp, until within about five weeks of the time when they will be required.

Removing Sea Kale and Rhubarb (*J. N.*).—These roots, which are two and three years old, and must be removed, had better be taken up forthwith. Injure them as little as possible, and replant them forthwith.

Geranium Cuttings (*Nilesperandum*).—Boxes nine inches wide, and as many deep, will do for geraniums; but those "struck this autumn" had better not be moved until spring. Charring the inside of boxes is the best mode of keeping them from decay, and you may paint them after. Holes through the bottom of each box three inches apart, and half an inch in diameter, will allow the drainage water to escape.

Orchids for a Greenhouse (*A. N. H.*).—We are not quite sure whether you mean the same kind of house as we gardeners term greenhouse; by that term we understand a house that requires no artificial heat beyond just keeping out the frost. If you mean a house of this kind, there are very few, if any, orchids that will exist in it, excepting one or two species from New Holland, such as Dendrobium speciosum, and tetragonum, and other small species from the same country. Your question about whether there are any in Epping or Hainault forests is rather a strange one. There may be some terrestrial species in those woods, and curious plants they are, if any grow there. West Kent is the most prolific of British orchids, and you may obtain them from a florist, Mr. R. Sims, near Foot's Cray, Kent, at moderate prices.

Heating by Gas (*A Tiverton Subscriber*).—You have placed in the middle of your small greenhouse a lantern-shaped tin case, without holes and quite close, and supplied with oxygen by the means of a pipe brought from without, and in which tin case the jet of gas burns, the noxious gases ascending through the pipe which is carried up through the roof. Now this being contrary to our advice given in the 48th Number, you have forebodings as regards the probable results, although the noxious gases are supposed to be confined within the tin case. In your apparatus you need not have any fear of injury from the gases given off from the burning gas; and we shall be glad to know, when the winter is over, the size of your greenhouse, the quantity of gas consumed in heating it, and to what temperature you could keep it during frosty nights. For a very small greenhouse a tin case holding a gallon of water would be sufficient for supplying a flow and return pipe on the hot-water system of heating. The size of the boiler is of little consequence, but to supply it with heat as fast as is necessary is the important point. Your young plants, with their roots through the holes in the pots, may be shifted now into pots a size larger, if you take care to disturb the roots very little.

Swede Turnips (*W. C. G.*).—For producing seed you may plant these at once. *Mangold Wurtzel*, for the same purpose, store in sand or ashes in a dry outhouse until February, and then plant them. Your suggestion we will think over.

Coal Dust (*E. A.*).—This will be quite as beneficial an application to a heavy soil to render its staple more open, as if the dust was previously reduced to ashes. We cannot tell you within the compass of an answer to a correspondent "the characteristic points of a good Chrysanthemum." Mr. Fish will do so, we dare say, one of these days.

Filtering Rain Water (*A Constant Subscriber*).—You must adapt to your cistern the plans figured at pp. 141 and 216 of our first volume. We know it to be effectual.

Name of Plant (*A Smatterer*).—Yours is *Sphenogyne speciosa*, a half-hardy annual, native of South America.

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WEEKLY CALENDAR.

M D	W D	NOV. 29—DEC. 5, 1849.	Weather near London in 1848.			Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
29	Th	Thrush sings again.	T. 55—38.	S.W.	Rain.	43 a. 7	54 a. 3	6 11	15	11 25	333
30	F	St. Andrew. Stock-dove comes.	T. 48—30.	S.W.	Rain.	45	53	rises	○	11 3	334
1	S	Trees leafless generally.	T. 48—34.	S.W.	Rain.	VII	III	5 46	17	10 41	335
2	Sun	Advent Sun. Pipistrelle Bat last seen.	T. 45—29.	S.W.	Rain.	48	52	6 49	18	10 18	336
3	M	Grey Plover goes.	T. 51—36.	S.W.	Rain.	49	51	7 59	19	9 54	337
4	Tu	Linnean and Hort. Societies' meetings.	T. 53—38.	S.W.	Rain.	50	51	9 14	20	9 30	338
5	W	Pin-tailed Duck comes.	T. 53—39.	S.W.	Rain.	52	50	10 30	21	9 5	339

St. Andrew was a disciple of St. John the Baptist, and afterwards of our Lord, being one of the twelve selected to be his most constant companions. He was the younger brother of St. Peter, and the first disciple called by our Saviour. On the latter account, and because he was the first who brought others to Jesus, it has been suggested that his festival was placed nearest to the celebration of Advent, that other festival which commemorates the coming of our Redeemer. Although it so appropriately happens, yet the best authorities state that it was on the 30th of November, A.D. 69, that Andrew suffered martyrdom, and on that account, most probably, he is on this day commemorated. Authorities differ as to whether he evangelised in Greece or Scythia, but all agree that he was put to death cruelly at Patras, by order of Egæus, the pro-consul. The opinion that he was fastened to a cross, called decussated, or in the form of the letter X, is of great antiquity, but the oldest authorities state that he was nailed to an olive-tree. The Scotch have believed that various relics of St. Andrew were brought into Fifeshire by Regulus, an ecclesiastic of the Greek Church, who was wrecked in the bay of St. Andrews, and that from this circumstance the city of the same name was founded, and the apostle adopted as the national patron saint.

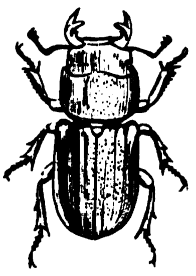
Advent, or the coming, now includes the four—as formerly it did the six—weeks before the celebration of our Saviour's birth. The first Sunday in Advent, called Advent Sunday, is now always the Sunday, whether before or after, which occurs nearest to St. Andrew's day. Except by special license, it is doubted whether marriages can be solemnized from the commencement of Advent until after the close of Epiphany on the 14th of January.

Meteorology of the Week.—The average highest temperature of the above seven days, according to observations made during the last 22 years, is 48,3°, and the average lowest temperature 36,7°. Of course, the heat is occasionally much greater, and often much less. Thus, on the 3rd of December, 1847, it rose to 57°, and on the 5th, in 1844, fell as low as 14°. In the 22 years referred to, 79 of these days were fine, and on 75 of them rain occurred. It is not often that our large and rapid rivers are frozen over, but this occasionally occurs; and when they are, the frost usually sets in during November. Thus, on the 24th of November, 1716, a frost commenced, which continued until February the 9th, 1717, during which fairs were held and oxen roasted on the frozen-over Thames. In 1788-9, the same river could be crossed on the ice opposite the London Custom-house from November to January; and the same occurred in 1813-14, and in 1823.

Natural Phenomena Indicative of Weather.—As rain approaches, *dogs* become dull and sleepy, and are not easily aroused from before the fire. At such times they also eat grass, or "take physic," as children term it, showing that the canine, like the human, stomach is liable to be disturbed by change of weather. It is quite certain that they are excited by the electrical changes which take place as the weather varies, for they howl at night, dig holes in the ground, and betray other symptoms of excitement just before the occurrence of a change of weather. *Drains* and *cesspools* are more offensive than usual when rain is near at hand, because all smells are conveyed more readily by damp air than by dry air. *Ducks* fluttering about, washing themselves in the water, and being more than usually clamorous, indicates approaching rain. Geese and other water-fowl are similarly excited by such an approaching change of weather.

RANGE OF BAROMETER—RAIN IN INCHES.

Nov.	1841.		1842.	1843.	1844.	1845.	1846.	1847.	1848.
29	B.	29.176	29.527	30.366	30.038	29.733	29.799	29.699	29.919
		28.948	29.519	30.293	29.958	29.702	29.710	29.342	29.742
	R.	0.54	0.01	—	—	0.51	—	0.02	0.12
30	B.	29.250	29.975	30.361	30.099	29.936	29.994	29.826	29.893
		28.845	29.602	30.064	30.073	29.885	29.848	29.720	29.713
	R.	0.05	0.01	0.06	—	—	—	0.04	0.01
1	B.	29.536	30.017	30.076	30.123	29.997	29.900	30.353	29.614
		29.301	29.997	30.034	30.083	29.749	29.655	30.188	29.355
	R.	0.8	0.01	—	—	0.02	—	—	0.19
2	B.	29.437	30.079	30.215	30.053	29.952	29.428	30.269	29.612
		29.270	30.028	29.991	29.998	29.501	29.631	30.173	29.362
	R.	0.15	—	0.02	—	0.30	—	—	0.02
3	B.	29.246	30.382	30.368	30.073	29.570	29.716	30.113	29.797
		28.948	30.200	30.348	30.041	29.422	29.564	29.992	29.579
	R.	0.17	—	0.01	—	0.04	—	0.11	0.01
4	B.	29.922	30.406	30.358	30.223	29.769	29.878	29.943	29.268
		29.297	30.341	30.276	30.196	29.541	29.788	29.445	29.116
	R.	0.13	—	0.01	—	0.39	—	0.28	0.19
5	B.	30.038	30.297	30.148	30.111	29.514	30.003	29.486	29.215
		29.938	30.222	30.044	30.069	29.470	29.811	28.287	28.986
	R.	0.14	—	0.02	—	—	0.11	0.12	0.01



Insects.—At this season of the year, in felling fruit and other trees, especially the ash, if much decayed, the beetle of which we have given a drawing is often found in considerable numbers. It is of so repulsive a form and colour that it is usual to consider it as an agent of mischief, but it is not so, and we would save it from unmerited slaughter. It is the Small Stag beetle, *Dorcus parallelipipedus* of some entomologists, and *Lucanus parallelipipedus* of others. It is black, with the head of greater breadth than length, and furnished with mandibles, or jaws, of a form and position resembling the horns of a stag, from whence it receives its popular name. Its horns, or antennæ, are gradually thickened towards their end, and are there toothed like a comb on the inside: thorax larger than the head, and seems to form a part of it. It is about an inch long. We are convinced that it does not injure the living wood, but feeds upon it when decayed. In trees so failing they are sometimes so numerous that seventy-six have been found in the old stump of an oak. Its grub is bluish-white in colour, and large in proportion to the size of the beetle, being two inches long, and stout in proportion. It is so formed that it will bear a very heavy pressure unhurt. Both the grub and the perfect beetle are found this month in the interior of old decayed trees, but especially of the willow, ash, and elm.

Often have we inquired how it is that that good old plant *Leonotis leonurus* is not more generally cultivated by gardeners for late autumn decoration. It grows as freely as a willow, and its cuttings strike as easily as do those of a Salvia. It lasts a long time in flower, and is not over particular about winter quarters. It might be treated in a half dry state, like fuchsias and other half-hardy plants in an outhouse. The answers invariably given are, that the plant soon gets "sticky" and naked below, and that it is peculiarly liable to the attacks of the red spider; so that in nine cases out of ten it disappoints the expectations of the cultivator. To get rid of these objections to an old and deserving favourite, we advise the following method of treating it as an annual. About the end of February, or early in March, make cuttings from the strongest of the side branches; pot them singly into five-inch pots as soon as they are well rooted, and give them one more shift in about five or six weeks. As soon as the plants are well-established in their second pots, inure them by degrees to the cool atmosphere of a cold pit or greenhouse, and in May, when the dahlias are planted out, choose a rich south border, and plant out your Leonotises, sheltering each with a few boughs for awhile. As soon as they begin to grow freely, stop their points, and afterwards supply them liberally with liquid manure. Any time in August, during dull or showery weather, take them up and pot them, using a rich compost, and, as soon as they are established in these pots, place them in a sheltered place facing the sun, or in a cold pit, giving abundance of air, and they will soon flower profusely.

THE FRUIT-GARDEN.

Pruning.—In our last paper we spoke of the order of business through the winter, and adverted in those remarks to pruning; we now turn to its principles. In doing this, it will be well to take an analytical survey of the subject, which embraces a variety of objects, under various circumstances. In the first place, we may consider pruning with reference to situation, and object, or character of the tree; and, secondly, with regard to kind. The first will comprise the following:—

1st. Orchard trees.
2nd. Rough espaliers, or dwarfed standards.
3rd. Trained espaliers.
4th. Wall or fence trees.
5th. Fruit-trees in houses.
6th. Bush fruits.

It will be the better course to remark on these successively, and what we cannot finish in this paper must stand over. Before entering upon the subject in detail, it may be well to request our more inexperienced readers to bear in mind that, whatever other reasons may influence the pruner's art, the free and equal admission of light to all parts of a fruit-tree must be considered at all times as powerfully influencing the mode of pruning pursued.

Pruning Orchard-trees.—These, in general, consist of the apple, the pear, the plum, and the cherry.

Orchard Apple-trees.—The form of these being of only second-rate importance, the thinning out of the branches must have reference, as before observed, to the promotion of a free circulation of air, as well as of light. Most of our readers have, no doubt, observed how superior the apples are on the extremities of the boughs, as compared with those in the interior, or crowded parts, of the tree. This is owing, principally, to the influence of light; it must, however, be admitted, that a greater amount of elaborated sap always seems to be concentrated in those parts in most trees, that is to say, in the two and three years' old wood. Another and powerful reason exists for thinning out even limbs of some size in apple-trees. Every tree has an uphill life and a downhill one, if we may be allowed to borrow a phrase. When those trees pass the meridian of their strength, the sap flows more sluggishly through the branches and back to the roots; the active reciprocity between root and branch progressively declines, and hence the total decay of some shoots, and the partial decay of others. Now, the decaying shoots will, as long as sap remains in them, produce fruit of an inferior kind—fruit which is generally the first in the fruit-store to engender the destructive fungus we have before alluded to. This fruit, then, is generally worthless, and is not only of no use, but a positive damage to the trees; inasmuch as its maintenance draws on the hard-taxed resources of the parent tree, already overworked. From the moment, then, that decay of this kind is perceived, a gradual reduction of the expenditure—as our political friends sometimes say—must take place: whole shoots, nay, whole limbs, will at times have to undergo amputation. As it is not necessary to dwell as much over the common orchard tree as the trained one, about once in two years may suffice. After the reduction of whole limbs (when *really* necessary) is accomplished, some knife-pruning should succeed; and here the knife must follow, in a small way, the same premonitory symptoms which guided the movements of the bill-hook on the same. Where a pressure of business exists, this kind of work may be reserved for hard frosts; or even whilst snow is on the ground the thinning may be carried out. It may, indeed, be considered as ordinary woodman's work.

Orchard Pear-trees.—The habit of the orchard pear is very different from that of the apple. The pear will become stunted by age, but seldom cankers after the manner of apples. There is a kind of "wearing out" in pears which corresponds to the "wearing out," as it is termed, in the apple. It is, however, much more limited in character, and occurs in the main with trees which have been under a course of artificial treatment for a long period; such are the old Brown beurré, the St. Germaine, &c. Our old orchard pears, therefore, require, and receive, but little pruning; although we have no doubt that a judicious thinning out, in order to throw sunlight through the tree, would be found of considerable benefit.

Orchard Plums are somewhat limited in kind. In some of our northern counties we find abundance of damsons; some in the ordinary orchard, and many in the hedge-rows sorrounding the garden of the cottager. The common Muscle plum—the kind so much used for stocks by the nurserymen—is grown in some parts; and the Orleans may be met with in some quarters. Plums are, however, by no means prevalent in orchards; and we must, therefore, dismiss them for the present with a brief remark. The only one which carries a real importance is the old damson, and little pruning is necessary for these. The amount of light in our climate is quite sufficient for ordinary plum culture, it would appear; this is manifest, as to the damson, by the evenness of the sample, whether on the north or south side of a damson-tree; and the more tender plums being so rarely handled as ordinary orchard fruit, we need scarcely advert to them. The damson, then, which we for the present take for our type, will require a little thinning out when passing the meridian of its strength—and but little. It must be remembered that these fruits are very liable to suffer from our spring frosts, for the plum family being rather excitable are somewhat early bloomers; and it is not very unusual to see a damson tree in full bloom and covered with snow—by no means a desirable condition. Under such circumstances, then, it happens most frequently, as it does with the gooseberry in our northern districts, the blossoms in the interior of the tree will set fruit when those on the principal branches fail. A self-protecting power, then, of this kind, although it may cause the tree to look somewhat confused amongst its sprucely pruned neighbours, must not be despised; more especially as it brings such fruit to perfection despite of its unsystematic appearance. With these brief hints we may now dismiss the plum family, promising to handle them, in all their bearings, as pets of the kitchen garden, in due time. Next in order, then, comes

The Cherry as an Orchard-tree.—Although the cherry does not prevail in British orchards, our more southerly counties will consider it a fruit of some importance, and deserving a little attention. Foremost of all we may, perhaps, place the old May-Duke; for who will despise a dish of luscious looking "Dukes" in the first week of June? This is certainly a most extraordinary fruit, when its characteristics, which are very peculiar, are taken into consideration. Here we have a fruit of the most luscious character ready for table before any other stone fruit whatever; companion, and a fitting one too, for the melting and time-honoured strawberry; for, through a long course of years, it has been their lot to meet on the same table, and that, too, at a period when the dessert of ordinary folk could (in their absence) have boasted of nothing but a few half withered apples and pears. Perhaps, as Shakspeare observed in allusion to the great Falstaff's rapidly diminishing volume, "withered apple Johns." The Duke cherry is, moreover, a fit object of culture in a commercial gardening way; for who has not heard of Kentish cherries? It may not be generally known, perhaps, that the May-Duke possesses the property of hanging as long on the tree as most fruits. We think we may affirm that we have known "Dukes" ripe in June and sound in September. The only drawback against a much more extended culture of them is their extreme liability to be eaten by birds, wasps, flies, &c.; for, unless they are covered, it is impossible to preserve them; and this covering adds much to the expense of culture. To revert to our original point—the pruning—we may observe that except a little shortening back of the young shoots for a year or two after planting, very little pruning is requisite with the cherry. When the trees become old and somewhat exhausted, they sometimes require some large half-decayed limbs to be entirely removed; yet, as they, in common with most stone fruits, are liable to gum, it is well to defer such operations as long as possible; and, when performed, to close the wound over with some composition to keep out the wet and also to exclude the air. Such composition should be covered with something of the "macintosh" character, or it may crumble away. It must be borne in mind that if the cherries are to receive nets or other protection, the pruning must be regulated accordingly. The tree must be compelled to grow in a compact and somewhat upright form; and, of course, the pruning knife must be exercised in curtailing, or removing, straggling shoots. We cannot stay now to advert to the Kentish and other cherries, sometimes met with in the ordinary orchard, but must return to them at another time.

It will thus be seen, that of all the orchard trees, the apple requires most attention as to pruning, and next the pear. In all cases of lopping off large shoots or limbs, we would leave a portion of the alders. These alders and some birch had been planted evidently with the intention of sheltering the apples, and this was good policy; but the fostering friend of their early days had become the foe of maturer years. Such trees ought to have been occasionally lopped back. The owner asked if he had better cut them all down; here, however, would have arisen another stump. In the case of thriving trees, and limbs of moderate size, they may be cut closer; for here the sap being abundant and active, the wound, if nicely managed, may soon become healed over. But with old trees, which make but little wood, the case is very different. It is vain to expect the healing process here; and the only thing we can do is to apply a plaister, with a covering, as before observed. By these means the lodgment of moisture, and the entrance of air, may be prevented, which is very prejudicial to the healing of wounds in fruit trees. Every one must have witnessed the ill effects of the want of covering a wound in a large elm which has received a wound in its main stem. This plainly points to what injury arises from neglect in such cases. Another point is to form the cut so that water cannot lodge. A slope, forming an angle of about 45° with the stem of the tree, will be good; as, if cut perpendicularly, there will be some difficulty in getting the plaister to lodge.

Whilst on the subject of pruning the orchard trees, we may as well wind up this division of the subject by directing attention to the pruning, or otherwise dressing, of orchard hedges, or boundary trees. We were in an orchard the other day where a row of alder and other trees, between it and the stack-yard, so completely overhang the orchard side, that a whole line of Keswick Codling apples, which were within six feet of this boundary, were bent almost half down by the pressure and trespass of the evil. The stems of the orchard trees have become tender through this coddling system; for, indeed, I found the bark on some of these Keswicks as thin as though the trees were scarcely seven years old. We advised a progressive removal, cutting a few entirely down, some half way, and others to about hedge height. We are no advocate for shelter, as it is termed, close to an orchard, having always found that in proportion as the fruit trees are sheltered—*alias* coddled—so do insects abound: what shelters the fruits favours the hatching of myriads of orchard spoilers. We like the shelter of elevated grounds or of plantations, the latter at a considerable distance, if possible. Those who have orchards with crowded boundaries, then, will do well to exercise the bill and the hand-saw whilst orcharding is proceeding.

R. ERRINGTON.

THE FLOWER-GARDEN.

SOWING GRASS SEEDS.—Of all the news or novelties of gardening brought before the readers of these pages perhaps that of sowing grass seeds at the end of November sounds the most odd. We are so much accustomed to ancient rules and precepts, that when any one ventures out of the common ranks to recommend anything new, or to advise an old rule to be crossed or given up, he has to explain the reasons and conclusions for so doing as minutely as if it were a disputed point of civil law. Dry, hot summers often destroy the finer grass on our mown lawns, and the frosts of winter are also as destructive on heavy, wet soils, and the constant sweepings necessary to keep a clear, clean surface is likewise against the more tender grasses, which give a soft velvety touch to a well-kept green sward; so that, between one thing and another, the coarser grasses prevail and occupy the surface, thus giving a rough, and often a ragged, appearance to that which always ought to be as soft and as smooth as a carpet. To remedy all this, as far as it is practicable, recourse is had to grass seeds thickly sown over the surface, and a slight covering of soil, old tan, &c., thrown over the whole, to imbed the seeds and nourish the young herbage; and when the thing is properly managed, this answers very well; but when the sowing is put off till the spring, and, may be, till late in April, the next summer's heat overtakes the young grass before it can get a firm hold of the soil, and the experiment turns out a failure; the nurseryman is blamed for supplying what is supposed to be bad seeds, and friends are told it is of no use to endeavour to renew their grass-plots by means of seeds, and if they want to make a decent appearance under the scythe, they must take up the old grass and lay down fresh turf. Now, this is one of our most popular errors: the old grass must be very bad indeed, otherwise it is better than nine-tenths of that which can be replaced by ordinary turf in most places. The ordinary effects produced by relaying new turf are rather owing to the opportunity the change affords of stirring the soil beneath it so that the roots obtain a better hold of it, and this is certainly a great advantage when the soil is thin or very poor; but even then the old turf is more likely to suit, if carefully handled, than new turf; and, by scattering some of the soil over the turf as the relaying is proceeded with, and raking back the lumps and stones to be covered over by the next stretch of turfing, an excellent bed for grass seeds is immediately obtained; and if the seeds are sown as soon as the turfing is finished, swept or raked gently, and then rolled, a very good carpet of most beautiful grass might be enjoyed for years afterwards. Now, the whole secret of the thing is, that the seeds be sown late in the autumn, whether the old turf be removed or not; and, if it were possible, the grass seeds should be sown in October, just when the farmers begin to plant their wheat. The farmers are more wise in their generation in this respect than the gardeners, and their wheat is as truly a grass as the *Poa* (a genus of grasses), which encumbers our soil with weeds, although the fact is not believed by some writers—as I might show, from the pen of a classical scholar, in the pages of one of our best gardening books printed this season, where it is stated that the wheat has branched out from a species of carex! We must make allowance, however, for such lapses, until natural history is taught with the classics.

But, to our sowing. Few gardens are so situated as to allow of grass seeds being sown in them in October; the constant sweeping away of fallen leaves would either also clean off the seeds or otherwise disturb them; but, as soon as these are off, and the last mowing for the season is finished, the seeds should be sown, and with a liberal hand, at once; and as it is necessary to add some fresh compost to many of the flower-beds or borders every winter, the exhausted soil, removed to make room for such compost, is ready at hand to cover the seeds with, so that the old grass can hardly be seen for awhile. This is exactly the process I have adopted here for many years to keep the lawns in good order; but here, or any where else, I could never get a satisfactory return from seeds sown in the spring, except those of the white clover, and the small yellow clover, and even these are better when sown this way as early as February, but on fresh-stirred or trenched ground they would do equally well if sown as late as the end of April. Our practice here is to let the covering of soil remain in a rough state till the beginning of February, and then to take advantage of the first fine dry weather to sow the clovers, and to rake down the whole surface, gathering up every stone and clod; then to give a good heavy rolling twice or three times during the month. After a mild winter, seeds that were sown at the end of November will have sprouted and come up as thick as hairs on a cat's back, (to use a homely phrase), and thus they have the start of the clovers, which are easier to establish; and at that early season the grass grows so slowly that it is much more hardy to resist the first trying weather than if it had sprang up quickly, as it usually does when sown late in the spring. When alterations take place, and old shrubberies are grubbed up to make room for an extended lawn, the whole surface ought to be dug as low as where trees or shrubs were removed from, in order that the whole may settle equally; and, when the ground is thus properly wrought, a very respectable lawn may soon be made with few seeds by the process called inoculating—that is, getting some nice smooth turf from commons or road-sides, and cutting them into little bits, and planting them over the surface at a few inches apart, and, by that means, a square yard of turf will cover four or five square yards of surface. If a good sprinkling of grass seeds, and a little white clover seeds, are sown over the white, and then well rolled, a cheap plot of grass might soon be had. Soot is the best manure in the world for lawns, and should be applied in the spring and autumn in a liquid form. Worms dislike soot as much as salt. Coal-ashes, sifted very fine, are also an excellent manure for this purpose, and should be laid on before Christmas, as it is not good policy to stimulate the grass in the spring, so as to face a hot summer with a tender blade.

The unpractised would hardly believe the great difference there is in mowing over a touchy surface with the scythe and cutting it with the mowing machine. The scythe is far more destructive on such ground than the machine, and more so in the hands of a careless or bad mower; but the necessary sweeping after the scythe scratches the surface a good deal, and ought to have part of the blame, whereas the mowing machine cuts and gathers the grass with the same turn, and also rolls the surface in some small degree. Altogether, I like the machine much better than the scythe, and use it constantly here as a helper to the scythes, and alone for the last two cuttings in November, because it leaves such a close smooth surface that the best mower cannot imitate, and no old bottom grass is left to make the first two or three mowings in the spring hard and harsh. The worst of the machine is, that it rattles along with a noise as bad as that from a railway train, and you cannot work it near a house in the morning, when people are asleep, lest they should awake in a hurry and mistake it for an express train which had lost its way, and was coming right upon them; but in the afternoon, when people get more out of the way, it is a safe and useful instrument.

After all this, we may sow and mow, sweep and clean, and take all possible care of our lawns, from March to November; and yet, if we neglect them during the winter months, they will soon get patchy on very wet or very dry soils. On deep sandy loam, however, very little care is necessary, except keeping the surface clean; but, it is not too much to say that on touchy soil the grass should be rolled every time it gets dry, after a frost or very heavy rains. In large places this rolling is done with a horse in boots; and I have revived a very old machine here for rolling—which is really a very useful help in the garden—which I can recommend. It is in shape like a huge hand-barrow, with raised sides all round, a foot deep, and the two hind handles cut off, the two fore handles being the shafts into which the horse is yoked; and, instead of legs, it rests on two heavy rollers, the one two feet in advance of the other, and the foremost roller in two parts to allow of turning sharply without scratching or marking the grass. Now, with such a roller-cart or barrow—for it is a hybrid between the two—a good load of compost may be carried over the grass to make up a flower-bed any day in summer, or, in short, may be used all over the garden instead of carts or wheelbarrows, and will roll the grass or walks all the time. Besides the convenience of the thing, it often saves the men's time, and relieves them from many heavy jobs.

Some years since there was an outcry in the gardening papers about killing and getting rid of *moss on lawns*, and all sorts of prescriptions and experiments were recommended and suggested to convert our velvety carpets—the pride of English gardening and the envy of foreigners—into "a threadbare macintosh." I should consider it an irreparable misfortune if the "bottom" of moss, which I indulge with every care in my power on the beautiful green banks and knolls in the gardens, was destroyed; but moss requires just as much care as the grass itself to keep it in its proper place, and if allowed to get the upper hand it would become a great nusiance; but would the grass itself be better if once neglected? The use, and not the abuse of moss, is what gardeners pride themselves in so much, and here is where the superiority of the mowing machine over the scythe becomes so apparent. It is almost needless to say, that moss grows with us in the dull season, and its growth is arrested by our summer's heat. All the attention it requires is at the beginning of these two seasons. The first fortnight of dry hot weather at the beginning of summer dries up the moss to a cinder, even on low damp soils, and the common practice is to leave it untouched till the grass is well up again after the first rain, when the dead moss proves a thick felt under the scythe, rendering the operation of the mower more easy and pleasant. In the course of years, however, the annual coats of this brown musty felt accumulates, and by-and-by the finer grasses cannot make their way through it, and consequently soon perish, leaving the moss to take possession of its place, which it will readily do, and soon will acquire the mastery over all but the very coarsest herbage. It is then that people begin to exclaim, "How can I get my lawn cleared of moss?" The easiest time to kill a giant, they say, is when he is fast asleep. Moss is not much of a giant, it is true; but when it is at rest during a summer's drought is the proper time to keep it down—not kill it. Now, like all great secrets, keeping down moss is one of the simplest things in the world, when we once know it; all that is necessary is to go over the ground with old brooms, and scrub them very earnestly against the surface, backwards, and forwards, and sideways, just as mowers go over the ground. Now, the parched up herbage of moss flies off in a volume of dust before a good brooming, if there is such a word; but after a mild winter we often gather large quantities of this burnt moss, and on the return of moist or rainy weather the young grass and fresh moss have an equal chance to grow; but, as grass gets up much faster than moss, it is thus enabled to keep head against the moss.

I have said already that we give the two last cuts of the season with the mowing machine, and this shaves the moss so clean and even that no more of it is left than will just nurse the grass through the winter. Moss is a great protection to the finer grasses when thus managed; the worms do not like it, and it renders the lawn elastic, and more comfortable to walk on after rain or frost; whereas, without a bottom of moss the very best-kept lawn is soft and soapy, and hardly fit to tread on in damp weather without gutta percha soles. I have heard and read as many silly things as most people, but I must confess that nothing in the way of gardening has ever fallen under my notice half so preposterous as the idea of getting rid of moss. Talk of "velvety carpets," indeed! D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

Viola Odorata. — There are few of our lady friends to whom a small bouquet of sweet scented violets would not be desirable in the chilly days of winter and the earlier stormier periods of spring. A great gardening author once stated, that if three flower-pots were kept in a window during the winter, one of the three should be devoted to the culture of violets. Right well did he know how dear that little flower was to the human heart! Years have rolled on, and life, with its stern duties, has somewhat shaded and blunted the little of romance and poetry within us, and yet the sight of the diminutive simple violet, when in a musing mood, has conjured up associations that enabled us, as of yore, to traverse the brake, and walk the dell, with companions—many of whom are gone—all are scattered—while their arch quizzing looks, and pealing voices, when to a favourite fair one the first-found flowers were stealthily and bashfully presented, are as present to our mind as they were upon the occasion when youth was young. And where resides the charm? The Heartsease (*viola tricolor*) is not only frequently odoriferous, but it is often strikingly beautiful, from the variety of its markings and the harmonious combination and contrast of its colours; and yet, much as it is loved, and sweet and musical as is its name, it holds not the same place in our sympathies as the diminutive violet, that has little to attract the eye; but which, like other objects, human as well as floral, would pass unnoticed in the crowd were it not for the beneficence they shed—the fragrance which they yield. In this love of the violet—not merely from its poetic associations, but from its own usefulness and fragrance—we are furnished with a demonstration, that however men may be tickled with gaudy show, brilliant splendour, and pompous pageantry, yet in their heart of hearts they consecrate the highest place to retiring virtue—to unobtrusive generosity —to those "who do good by stealth, and blush to find its fame."

At one time wine was made from the flowers of the sweet violet. A blue solution of its petals was, and is, used by chemists as a test for acids and alkalies; and even now the dried petals are used as a laxative, and a mitigator of pain in the case of children. When gathered with stalks and placed in water, they will keep fresh and give out their perfume for a week; but if the flowers are dried in the shade, before they are too much expanded, they will retain their fragrance for a very long time. I am not aware that this is generally known; I found it out by accident. A waistcoat had not been worn for a twelvemonth—when put on it was quite fragrant with violets—on close examination, a few withered flowers were found in the pockets, which were quite odoriferous then, though placed there fully twelve months before. We shall now glance at a few of the best varieties.

The Russian Blue violet is as hardy as our common one, that cheers with its perfume our banks and hedge-rows in spring. The flowers are much the same in size and colour, but possess the advantage of blooming more profusely and earlier, being generally in flower by the end of October. They flower best in loamy soil well drained. In light sandy soil they are apt to grow too much to foliage. They are propagated by seed, but more generally by offsets or runners, or by the dividing of the old plants. The old crown, and runners produced during the summer, will all bear blooms. Sheltered with boughs, &c., at the foot of a wall, paling, or hedge, or planted in a bed with a frame set over them, and defended from frost, they will bloom freely all the winter. By filling some pots of boxes with young plants in September, they will be fitted for the window, setting them outside in open weather, and inside when frosty and stormy. A superior (or what is called a superior) one is being advertised, which we have not yet seen.

The Double Blue is more compact in its growth: it flourishes best in a deep loamy *well drained soil.* In such circumstances the flowers will be larger and sweeter than upon lighter land. They produce their blooms from the old Crown, and also from the runners formed in the early part of summer. They may remain, therefore, several years upon the same ground, and little attention paid to cutting or pruning them. The flowers, however, will not be so fine as from plantations one or two years old. They will flower in pots, either for the windows or greenhouse, and will be forwarded, if planted under a glass case, with plenty of air, but they will not stand much forcing, the flowers when thus obtained neither being large nor rich in their perfume.. When grown in pots the soil should be rich and loamy. The plants should be raised from off-sets planted out in April or May, kept free from runners, well watered during summer, and potted with balls in the end of September.

The Double White requires similar treatment; but altogether it is much more tender, and is generally a great favourite among the ladies. The soil should be drier and of a lighter texture than for the blue variety, and, if exposed in a cold situation, a few laurel boughs stuck round it in winter will do good service.

The Tree violet is also a double blue. The flower is somewhat rounded and conical, while the common blue is flattish; this forms a distinctive feature. The flowers are seldom so large as the double common one, but its leaves are also generally smaller. Its chief recommendation is, that it flowers as freely and as early as the Russian; it will bloom out of doors, protected from storms, in frames and in pots during the winter. A few in pots, placed in a window or in a greenhouse, will bloom profusely. It will also admit of being slightly forced, and prefers a lighter soil than the common blue. All the violets may be grown in the tree form, and some years ago we amused ourselves with experiments in this direction, though we never could see much beauty in them when obtained. This will account for the common blue, &c., having been sent out under the name of the tree violet, and thus caused disappointment because they did not bloom early. The one under discussion seems, however, to take the tree form most easily. This is effected by cutting off the side shoots, and training to one shoot, with its crown, or tuft of leaves, on its summit. By repeating the process for years, you may get plants with stems from six inches to two feet in length; but to approach the latter height, few or no laterals, or runners, must be allowed to grow until the desired height is attained, and then you will have something like *mops*, in miniature, to look upon. When the stem has grown from six to eighteen inches in height, and the runners are then encouraged to grow, so as to hang in festoons from the crown at the top, and all are furnished with bloom, the plants present a very interesting appearance. Without this is done, the mere tree system had better be avoided. The plants will bloom as well, and look more natural, when covering the surface of the soil. Propagation is easily effected by planting out the runners in a shady place in summer, or inserting them under a handlight in spring.

The Neapolitan violet is deservedly a general favourite. The flower is large and double, lilac blue, and beautifully scented. It delights in a rich loam, with an addition of either peat or leaf mould. Unless in warm sheltered places it does little good out of doors, and even then will only generally produce its flowers late in the spring. Its great recommendation is, that it will bloom all the winter in frames or pits, and in pots in the conservatory, while it will stand a little artificial heat, without injury either to the size or the odour of the flowers. It may be forwarded in any place that would suit strawberries before they come into bloom; in other words, where there is an average temperature of from 55° to 60°. In growing it in pits or in pots, young plants only should be used. A distinctive feature in its management arises from the fact, that the runners produced in summer will not bloom the following winter and spring. In preparing and growing plants for blooming, therefore, the runners should be carefully removed, that more strength may be thrown into the crown of the plant, and that the juices there collected may be more perfectly organised by the removal of all shading and encumbering adjuncts. As the flowering season approaches its termination, runners may be allowed to grow for propagating, for the next season's supply. These may be taken off and inserted as cuttings under a handlight upon a slight hot-bed in April or May: when struck the handlight should be removed, and by-and-by the plants should be transferred to a bed six inches apart, there to grow during the summer, in lightish rich loamy soil, well supplied with water, the ground frequently stirred, and *not a runner allowed to grow.* Where handlights are not come-at-able, the same object may almost as securely be gained by dividing the old plants into little pieces, planting them out like those raised from cuttings, and attending to them in a similar way. They may be lifted with balls, either for potting or planting under glass in September: in either case, drainage must be carefully attended to. In planting in a bed, lay down, first of all, a foot of faggots, &c.; upon this place another foot of hot dung not much decomposed, and then a requisite layer of soil rather dry. The faggots will ensure you drainage, and enable you to throw a little heat into the bed, when necessary, by linings; the dung will encourage, by its heat, the fresh rooting of the plants in the soil. Place the plants in rows across the bed, just so thick that they do not touch each other; water each row thoroughly as you proceed, and then cover the surface with the dry soil, which will both prevent the evaporation of moisture from the roots, and keep the atmosphere of the frame or pit dry; to ensure which more effectually, and also prevent the ravages of slugs, &c., strew over the surface of the bed, when cleaning it, several times during the winter, with dry charcoal dust, quick-lime, and burnt earth, or even dry sand—an application that will be useful to all the others, whether in the open air or under glass; and by attending to their wants, in protecting, air giving, and watering, you will be well rewarded. R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

Baskets for Orchids.—In our last week's number the baskets for orchids requiring peat were described, and the genera mentioned that ought to be so cultivated. Several other kinds will not do so well in peat in baskets, and it is of these we now intend to write. The genera that require the treatment we shall describe presently, are Aerides, Saccolabiums, Sarcanthus, Renantheras, and Vandas. Amongst these are some of the most beautiful and most deliciously fragrant of the whole tribe. They are all, or nearly all, natives of the hottest parts of the globe, and of that class we have denominated "East Indian," requiring the hottest house. They are mostly strong growers, sending forth roots frequently as thick as the stem itself. Though they will grow on logs, or even if hung up in the moist air of the orchid house, with their roots unattached to anything, yet we have always found them to flourish and flower best in baskets. The material we fill the baskets with is sphagnum, or white bog moss. First, put a thin layer over the bottom of the basket, then carefully bend the long roots round within the basket; add moss from time to time, working it in amongst the roots. Do this lightly and carefully, so as not to break them. Not more of the stem itself should be buried in the moss than two or three inches. As the leaves are rather weighty, the stems of some of them will require sticks to support them. Some species, *Aerides odorata* and *crispum*, for instance, run up a considerable height without branching, sending out roots all the way up the stems. In order to cause them to break, or, in other words, to produce more shoots, the main stem may be bent down, and, in a short time, will then produce them, and so become in time a bushy plant. Each shoot in two or three years will flower nearly as well as the centre one. It requires, however, a considerable time to obtain from a small plant a good specimen. Perhaps there are no plants that exercise the patience of the cultivator so much as orchids. A plant of *Phalænopsis amabile* will be at least seven years before it can be increased. Thus, if the amateur has been fortunate enough to obtain a small branch of that rare and beautiful plant, the *Saccolabium guttatum*, and ties it to a log, hangs it up over the cistern, syringes it daily through spring, summer, and autumn, dipping it occasionally in the water; then, if it does well, it will produce a root or two, and, perhaps, two or three leaves the first year. Having made these roots, it may, about the middle of March, be safely put into the smallest sized basket in sphagnum. In this it thrives for another year, and is now a plant with several roots and half-a-dozen healthy leaves. The third year it will be advisable to enlarge its quarters by removing it into a larger basket—one about 10 inches square. It grows well this third year, sending forth more seekers for food, and obtains, perhaps, two pairs of leaves more. The fourth year it progresses again. "And will it not flower this year?" we think we hear our readers exclaim. The reply is, It probably may; but if it does it is more than we expect. The fifth year it is pretty certain to do so. Now, flowering plants of the division we are writing about are very expensive. When it is considered what a length of time they take to bring them to that state, it need not be wondered at that they are so high priced. A good flowering plant of *Saccolabium guttatum*, a plant mentioned above, is worth, or rather it will cost, seven or eight pounds; and even that is not a remunerating price when the time (six or seven years) it takes to grow it to that state is taken into account. Some orchids take even longer. The first plant that flowered of the truly magnificent *Vanda Batemanniana* was at least twelve years old. However, not to discourage the new beginner too much, nor tax his patience too severely, let us add that there are plenty of species which flower much sooner, if well managed in respect to hard growing and thoroughly resting,—two points of culture to be strictly attended to with all orchids. The splendid *Phaius Wallichianus* we have flowered finely at two years old, and several *Dendrobiæ* at the same age. There are some species of Dendrobiæ that do better in baskets than in pots. The finest plant ever seen of that fine species, *Dendrobium macrophyllum*, was grown by Mr. Basset, gardener to R. S. Holford, Esq., of Weston Birt, near Tetbury. This fine plant was grown in a basket suspended from the roof: it had six strong shoots, or pseudo-bulbs, from three to five feet long. Each shoot was nearly as thick as a man's finger, and produced numerous flowers on each. That rare species, *Dendrobium Devonianum*, the flower of which has been said, on account of its extreme beauty and delicacy, to be "not a flower of earth, but of heaven," thrives best in a small basket. A good specimen of this beautiful species may be seen in the collection of A. Kenrick, Esq., at West Bromwich, also in the fine collection of S. Rucker, Esq., at Wandsworth. *D. fimbriatum*, also, is a basket plant. Good specimens, so grown, may be seen at Messrs. Rollinson's, of Tooting, and at Messrs. Henderson's, of Pine-apple-place Nursery, Edgeware-road. These instances of successful cultivation are given for the purpose of showing the best way of cultivating the species in question, and also to stimulate the young beginner to strive so to grow his plants as to come up to the mark of excellence. "What man has done, man may do again," was a motto over the door of the village school where the knowledge of A and B, and all the rest, was first beaten into the head of the writer of these lines. It may be said, however, in addition, that what man has done hitherto may be better done by those that come after; therefore, instead of being content to produce such fine plants as the instances mentioned above, we trust our readers will strive by patience, ingenuity, and perseverance, to surpass them. Every *exhibition-grower* of plants of every kind should make it a point to be attained as soon as possible (next year for instance), to visit at least once the great metropolitan exhibitions. There they may see how the present generation of cultivators surpass the preceding, not only in orchideæ, but in every kind of plant grown in pots. Those who have never seen any of these exhibitions would, we opine, be rather astonished, as well as highly gratified, with the sight; they might there see the different modes of growing orchids, we are endeavouring to describe, carried out to great perfection. They would see concentrated, as it were, in one focus the greatest amount of gardening skill, and would go home determined, as far as circumstances would allow, to imitate such bright examples. They would then aim more at having a few well-grown handsome plants rather than a house, or houses, full of drawn up, long-legged thin ones, that at this age are not at all creditable to any cottager or amateur, and much less to a gardener. All this, perhaps rather long story, is intended to stimulate the young grower of orchids to strive with all his power and means to produce well-grown and finely-flowered plants, which he cannot do without strict attention to the instructions given from week to week in these pages, adapting them to circumstances as much as possible. Next week we shall describe the third mode of cultivating these fascinating plants, namely, on blocks of wood.

FLORISTS' FLOWERS.

This month, so far, has been a favourable one for our favourites, the number of fine clear days having been above the average. In consequence, the florist has been enabled to give abundance of air: health-invigorating sunshine has also prevailed more than usual, so that the glasses have been removed from the frames, and damp, and mouldiness, and all the ills that plants in frames are heirs to, have been considerably diminished: hence the average number of deaths among plants, like the mortality of the human race, has been considerably reduced. Frost, however, has appeared again On the night of November 16th, in the neighbourhood of London, there were six degrees of frost. Protection from this degree of cold is necessary. We advise our readers to be wide awake now to the least appearance of frost, and to shelter accordingly. Keep a good look out also for insects. On Carnations, Verbenas, Pansies, Chrysanthemums, and others, the *green fly* (aphis) will be making its appearance. To destroy it, frequent moderate smoking with tobacco is necessary. *Water* also will be required in dry weather, but it must be given in very moderate quantities, and on mornings when the sun is likely to shine, in order to dry the surface again before the evening.

Dahlias.—The roots of this fine autumnal flower should now be stored in some dry place where the frost cannot reach them. Late struck cuttings are best kept in their pots. Under a greenhouse stage is a good place for them. The tops should be cut off, and the pots laid on one side to prevent any water falling upon them to wet the earth in the pots. This is the best way to preserve dahlias; we hardly ever knew it fail. Our friend, Mr. Beaton, has given lately a very good list of the best kinds, that have proved their good qualities by being placed in the winning ranks at the different exhibitions. We are inclined to add to his list a few kinds of the fancy class, which we noticed as being excellent, both in form and colour. We noted them at Mr. Handyside's nursery, at Musselburgh, near Edinburgh. This gentleman keeps an excellent collection of all kinds; and when we saw them they were in excellent condition, as well-grown and well-flowered, nay, better than any we saw during our journey. The fancy sorts, we allude to, were named—Ratisbon, Dr. Horner, Miss Blackmore, Comte de Flandre, Stern von Missouri, Triomphe de Magdeburgh, Post Secretaire, Privateer, Miss Stephens, Paragon, Belted knight, Belle bouquet, Myrobalon de neuf. These are all very double, well up in the centre, petals of good shape, and considerable depth. Colour distinct, and mostly well defined. The above few kinds we selected out of at least a hundred varieties, all very distinct from each other in colour, and their other qualities equal, or nearly so. The most striking amongst the selected lot was the variety named Miss Blackmore. T. Appleby.

THE KITCHEN-GARDEN.

Carrots.—Those already stored should be well looked over. If put in any damp close situation, they will more particularly require early attention, as all bruised spots, broken ends, and any of the crowns that may have been closely cut, are liable in such situations to suffer from the accumulation of mildew, which, if not checked in time, by rubbing and removing the affected parts, will soon extend to gangrene and decomposition, whereby the winter's store may be destroyed to a serious extent. Dry charred earth, or charred dust of any kind, is a good preservative shaken amongst the carrots, when they are removed and packed, and the addition of a very small portion of slaked lime mixed with the dry dust will be found still more effectual as a preventive of mildew.

Cardoons should be bandaged and earthed up in succession, taking care to perform this operation when the plants are dry.

Horse-radish.—As the leaves are now decayed, horse-radish may be trenched out, and the best roots stored, by laying them in thickly together in some spare corner. Re-plant the strongest crowns of the refuse, provided their roots are entirely left to them, as the trenching proceeds. Trenches two feet wide and two spits deep, with the crumbs thrown up, will be found a good depth for trenching out the crop and re-planting. Break up the subsoil with a good strong fork or spade, and lay the plants in a slanting position against the base of each trench, taking care at the same time to apply a good portion of manure or compost of some kind. A quantity of cinder-ashes are very suitable for keeping a stiff soil open, so that the young shoots may meet with no obstructions in their growth—a very essential point in its cultivation. To produce horse-radish tender, and of a delicate white colour, requires a good and well-drained soil, as well as a liberal supply of manure.

Draining and Trenching should at this time of the year be well attended to. Where the subsoil is of a poor and hungry nature, do not cast too much of it to the surface at first, but begin by intermixing a moderate portion with the surface soil, well breaking it up at the bottom of each trench, and allowing it to remain loose and open for some time, so that it may improve and become in better condition for intermixing in larger quantities the next time the ground is trenched.

Turnips.—Those who have not already provided themselves with a few good bulbs of the *Swede turnips* would do well to procure some at once, and plant them in some corner for producing greens in the early spring. The greens of the *common turnip* are also esteemed by many, and a few bulbs of these also for the same purpose should now be procured. Good turnips from the best varieties should also now be selected and planted for seed.

Celery and Endive.—We have already said much about taking up brocolis, borecoles, &c., but it is probable that many may yet have a dozen or two sticks of full-grown and very fine celery standing just in the middle of some favourite quarter, which is now wanted for planting potatoes, beans, or peas;

and if so, why not take it up at once and lay it in close together in some warm corner, where it may be kept in any quantity, if laid in deeply? *Endive*, too, may be protected in the same way, with very little trouble, should severe weather set in. A good gardener should be always watching and providing for future wants and events.

J. Barnes and W.

MISCELLANEOUS INFORMATION.

ALLOTMENT GARDENING.—December.

Although during this dull month nothing immediate may press on the allotment holder, yet much of a prospective character lies ahead, and even the spare hour during winter's repose may be properly employed, provided the ice-king's reign is set aside for awhile. Mere labourers cannot be supposed to have leisure overhours during winter, and it is clear that if such are to carry out improvements during the short days that they must at times absent themselves from their employment. A couple or three days at intervals, in fair weather, would in general suffice in ordinary allotments as to making improvements affecting the staple or condition of the soil, and we think and hope there are few employers who would throw themselves in the way of an industrious cottager's progress; the majority would be happy to see an ardent desire for improvement in such men; for we may rest assured, that in proportion as a cottager becomes more industrious and more earnest to better his condition, so will he prove of more value as a servant.

As foremost, we advise the cottier to look well to his potatoes; those who have pitted them—a plan the cottager should never pursue if he can help it—must endeavour to get them out as soon as possible. In Cheshire, at least one half of those pitted are rotten, whilst others uncovered in sheds and outhouses have suffered little or nothing. The seed potatoes for spring planting should be immediately pricked out with great care, and spread by themselves in a dry and cool place, and made safe from frost. Mr. Errington's practice is to smother them over with fresh lime and dry charcoal dust, which, he thinks, has a tendency to purify the skin from anything connected with the disease.

Drainage.—It is scarcely possible to overrate the importance of drainage; it concerns the allotment holder even more than the general farmer; inasmuch as expending, as he should do, a greater amount of labour on his soil, he ought to look for a much increased produce. If stagnant waters are permitted to choak and corrupt the soil, one half his labour and three parts of the manures will be wasted. Manures, it is well known, will not act in water-bound soils. Unless the hidden waters are removed the air cannot enter, and without air entering the soil the manures cannot decompose or rot, and without rotting they give out little nutritious matter to the plants: the very stunted oaks, and other trees, even the apple in the hedgerows, or sides of allotments, bear ample witness of the ill effects of stagnation by their hidebound and moss grown character, and by their stag-headed appearance. If, then, hardwooded trees, which possess vital powers of a more enduring character than our root crops, thus suffer, what can be expected from such succulent and tender plants as the mangold, turnips, and potatoes, with which every day that is lost detracts from their ultimate weight, the time allotted to them from the seeding to the harvesting being of so very limited a character. Observe well, too, the difference in the working or pulverising of the soil in soils thoroughly drained, and those of a stagnant character; neither rake, nor harrow, nor roller, can effectually crush the "livered" clods on wet and adhesive soils; they are always tough, being as it were only kneaded by the action of implements. Indeed, if it were not for the useful action of our severe frosts, many such soils must go out of culture altogether, as far as concerns the plough or the spade. It is well known also that the produce from such soils when obtained is not nearly so nutritious to either man or beast as that from mellow upland, or well-drained soils. Who would prefer to buy a stock of potatoes from a wet field, if he could buy at the same price from a dry upland one? We may here point to another well-known fact, as bearing on this subject; a too liberal use of rank grasses from water meadows is almost sure to produce lice in cattle. Let us, therefore, persuade allotment cultivators to take a serious view of this matter, and a little extra courage for a day or two will enable them to make solid improvements in this way, which will never be regretted, but prove a source of great consolation in spring and summer, when the cottager notices with what ease and satisfaction he performs cultural matters, and observes, as he must and will, such an improved size and appearance in his crops of every kind. In making his drains it will be necessary, in some cases, for the allotment holder to endeavour to act in concert with those who hold adjoining compartments. This, we own, is slightly difficult: nevertheless, we should hope that the landlord of the plot would, on a proper appeal, and a well concerted plan, enforce the carrying out such a design for the good of all parties; and take care that each bears his proper share in the burden. As such men are not overburdened with capital, a generous landlord should at once purchase the tiles necessary at a per centage charge; many thousands of acres lie undrained merely through dread of the first outlay. In many districts, however, stone and other inexpensive materials exist in abundance, and these will merely require carting to the spot. We would here advise plenty of depth to the drain. Much depends on subsoils, but we would have none less than thirty inches in depth: very few persons complain of having made their drains too narrow or too deep.

Trenching and Ridging.—We have before adverted to the immense importance of deep trenching in the winter season, and of ridging spare ground, whether trenched or dug; indeed, thorough drainage and deep digging or ploughing are the principal foundation on which any real improvements can be based. Deep digging not only allows the plants to make both more roots and to extend them further—thus keeping up a permanent growth during dry and hot weather, whilst crops in shallow soils are flagging and stationary—but it is an economiser of manure. We would, by the aid of trenching, undertake, during a whole summer, to produce as great a weight of some crops, on certain soils, without manure as with it, accompanied by shallow digging or ploughing. Ridging, too, in the face of a long winter! who has not been struck with the difference in the amount of labour requisite to prepare for spring crops on soils "breaking down" from ridges, and those just turned up after laying stagnant since October? Even the most stubborn clays submit to the action of continued frost, provided a great extent of surface is exposed.

Hay-grass.—Those who possess a cow and some land for hay, as well as root crops, should forthwith put forth their energies to obtain a full crop of this valuable article. We need scarcely observe, that if hay-grass is eaten down constantly until March, that a full crop must not be looked for. The cottier with one cow, however, and perhaps a rearing calf, should be above such a silly and pennywise proceeding. Surely, with his root crops, the consumption of their tops, and other gardening offal, with a little bran, Indian corn meal, inferior and cheap oats, &c., together with a little hay, he can manage to shut up his hay-grass by the end of November. Better even buy a little straw than injure the next year's crop of hay. The plot of hay grass should have a trifling amount of manure at proper intervals; and here we say, use at this time of the year the coarser portions of the manure heap for the hay ground, reserving the more rotten for the root crops, &c., in March. When littery manure is thoroughly well shaken over hay-grass in the early part of November, it is astonishing what a bulk of herbage is produced betimes, and it nourishes a strong "heat" beneath it; indeed, independently of the fertilising properties, the severity of the weather is warded off, cold winds pass over the surface without carrying away the heat, and the whole field, by such treatment, is nursed like a bed of radishes in a garden.

Economy of Cattle or Pig Food.—At this period those who took our allotment advice, about planting the thousand-headed cabbage, green kale, &c., will be rewarded by the prospect of a countinuous supply of green food through the winter: such matters, as before observed, have a bearing on the hay-stack economy of this year, and the prospective one also. We have a plot of green kale at this time, in drills two feet apart by fifteen inches between the plants, which is a complete picture. The whole average a yard in height, and it is as dense as a thick forest. It is impossible to conceive anything more productive, and having cut off and used up the *mere* points a month ago, they are covered with innumerable sprouts about four inches long. The sprouts will continue growing all the winter, at intervals, and will themselves produce sprouts when cut. Therefore the true policy with this plant is to sow early, plant early on rich soil, and to top early in order to force out every sprout before winter. We merely remove the terminal point with three or four leaves adhering to it; and thus cut, and under high culture, it furnishes a dish superior, as we think, to either sea-kale or asparagus. Well, then, here we have these greens in abundance, perhaps a few drumhead cabbage, savoys, or Brussel's sprouts; and plenty of carrots, parsnips, mangold, and a few good potatoes, in store. With such, and a good fat hog in the sty, and ordinary labour, a cottager may be one of the happiest of men, provided he can acquire contentment in his station; may we not add even thankfulness for so many blessings, as compared with the tens of thousands in an uncivilised state. All this, however, requires forecast —a species of forecast which, as Solomon says, may be learned from the ant or the bee. Those, therefore, who have not yet learned to manage matters thus, should lay their plans for a succeeding summer, whilst the season is young.

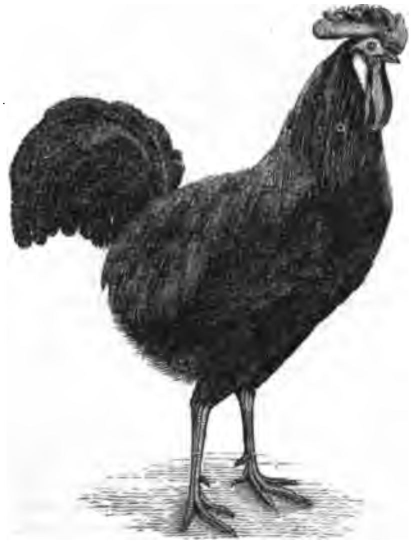
Pigs.—A cottager may now feed a hog at little more than half the expense which we have known to be the case. The various grains and meals are astonishingly cheap, and with such an allotment holding as we were just describing, with such a stock of green meat and roots, he may even keep a breeding sow, if necessary, and make some cash by the sale of young pigs; or he may, immediately on killing his fat hog, place a couple of good store pigs in their place to run through the summer, one to be killed in November, the other at the back of Christmas. As the cottager may sell his hog, it is not amiss for him to know the relation which live meat bears to dead. We think it will be found that about a score of live weight will amount to about a stone of dead weight, fourteen pounds to the stone. Smaller pigs are known to be liable to a greater loss by weight. By these means, persons inexperienced among swine may sell with certainty; for we have known cottagers sadly cheated in this respect by crafty butchers or pig buyers. We had intended to have given here an outline of the two or three distinct modes of curing bacon; we are warned, however, that we have reached our allotted limits.

THE POULTRY-KEEPER'S CALENDAR.

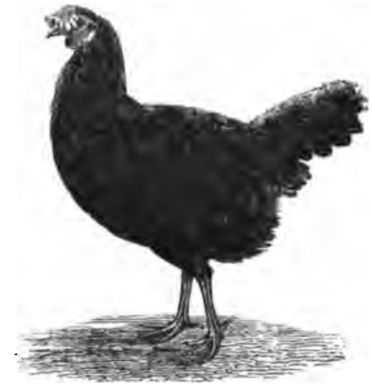
December.

By Martin Doyle, Author of "Hints to Small Farmers," &c.

Fowls.—Hens of late have, in frequent instances, withheld the desired supplies of eggs. Some Dorkings in our yard have not laid an egg for the last three months, though they have long since recovered from the effects of moulting. Our old woman says they are too fat and lazy; another person hints that they want excitement, and ought to be soundly whipped round the yard every day; another suggests that they may have laid eggs in some out-of-the-way place, as if ever hens lay without proclaiming the event loudly. The contributor of this brief calendar has at least to complain of some disappointment which those young Dorkings have occasioned to him, at whose recommendation the editor employed an artist to take the picture of one of them along with that of her husband, and thus display her beauties to an admiring world. Whether the cock, who is certainly handsome, shall continue a member of our little establishment will depend on his own conduct. He has become tyrannical and petulant towards his wives, and so very cold to one of them in particular, that *he* at least deserves to be whipped. The prison discipline of fetters has been tried on him once or twice, but without lasting effect, for on their removal he has crowed at the poultry woman in a tone of defiance, which sounded very like to "do your best; no one shall hen-peck me." Though for general purposes the Dorkings are the best breed, and so plentiful as to be within the reach even of the cottager, yet the *Dutch every-day layers*, where a large number of eggs is a principal object, are to be much recommended. Mr. Richardson, who is an excellent authority on poultry, describes them as of two varieties, distinguished chiefly by the colour. "When the colour of the body is a golden yellow, streaked or spangled with blackish or deep brown markings (an appearance caused by the dark colour of the ends of the feathers), the bird is styled the 'golden spangled;' and when the ground colour is white (the other circumstances of shading remaining the same). the bird is styled the 'silver spangled.'" They are a hardy and a pretty breed, and, having no strong desire to hatch, will lay eggs continually, if properly housed and fed. The *Spanish* and *Poland* breeds are also good layers, and of very large and well-flavoured eggs too, though the former rarely lays except on the alternate days. Both the Spanish and the best known variety of the Poland are black, or nearly so, in their plumage. The former, however, which is supposed by some writers to be a variety of the latter, has a shade of dark green through it, and a white check, which distinguishes it in particular. The legs are lead coloured. The comb and wattles of the cock are very large.



SPANISH COCK.



SPANISH HEN.

Both the cock and hen of the Poland kind have a shining black plumage, and white tufts on the head. To those who can afford to pay the high price usually asked for these fine birds, they are to be specially recommended for the size and quality of the eggs, their regular disposition to lay, and their grand appearance. But we repeat our preference of the Dorkings for the general purposes of producing many eggs in the year, sitting steadily, and supplying a profitable and well-flavoured bird for the spit. The great size and high quality of the eggs of the former large breeds render them so profitable that, whether they be sold for the table or for hatching, they fetch such a price as soon repays their original cost; and we think that even the cottager cannot better invest any spare capital he may possess than in the purchase of a stock of those breeds as long as they are scarce, and, therefore, worth a high price. Large fowls, it is true, will consume more food than small ones, but the difference is not very important. Garden refuse, boiled turnips, and small potatoes, beet leaves, lettuces, chopped leeks and cabbage leaves, assist in the keep of all poultry, and corn has never been cheaper than now. Damaged rice may sometimes be bought on very cheap terms, and this, when boiled, increases, like barley, so considerably in bulk, that a much smaller quantity suffices when boiled than if it were given raw. Barley swells to so great a bulk by boiling, that half the quantity, it is said, may be saved thereby.

To have a reasonable supply of eggs between October and February, warmth and feeding are not alone sufficient. There should be some pullets of the early spring preceding among the hens, for these pullets, if they had been well kept, will lay while the hens are casting their feathers, and suffering from derangement of the secretions. The hens, too, should be of different ages, in which case the younger ones will begin to lay early in the winter. By good management in this way a continued supply of eggs, excepting in very severe weather, may be constantly obtained. The laying hens should be always well fed with stimulating, nutritive, and, during winter, warm food. In the ordinary feeding of fowls with corn, it is desirable to scatter the grains amongst loose gravel or grass, to afford them occupation and exercise in scraping and searching for the grains.

In the last month's calendar it was mentioned that the fecundity of the poor man's hen is chiefly attributable to the warmth she enjoys on a rafter of his cottage; but nearly the same advantage may be attained by the cottager for his fowls, without the uncleanliness of having them inmates of his habitation, by erecting a roosting shed against the chimney gable, if no other house adjoins it. The fowls roosting with their backs to the warm wall will be as comfortable in their sensations as if they were in the interior of the cottage.

Every one who has laying fowls will be now collecting eggs for the Christmas plum-puddings. The eggs to be kept should be greased, in order to close their pores, with butter, lard, suet, or any oily substance, on the days on which they are laid, and then placed, on the large end, in bran or saw-dust. The reason for putting the egg on the larger end is, that the yolk keeps itself in this position of the egg from touching either of the sides, by which contact it would become sooner tainted.

The operation of making capons, and the process of fattening them, and all fowls for the table, should now proceed steadily. The large breeds are the best for the purpose. Large capons appear on the table as full-sized as turkey poults The autumnal broods of chickens will now be forward for the table. By three weeks' feeding in the coop, or confined in a room, with boiled rice, barley, or Indian meal and milk, or curds, and a small portion of potatoes, they will become fat enough without cramming with pellets of meal paste. The troughs should be kept very clean and free from a sour smell.

TURKEYS.—The black Norfolk breed is considered the best; it is more hardy than the white, and larger and preferable also to the copper-coloured; it fattens more readily than either of these kinds. If the run of a poultry-yard and field, with corn two or three times a day, be not considered sufficient feeding for them, they may be crammed with pellets of meal. Mr. Richardson says that 20lbs. is a fair weight for any fat yearling turkey, and 30lbs. for one of any age, and that few, except the Norfolk, ever exceed 40lbs. The latter sort has been known to attain the enormous weight of 56lbs.; it was, no doubt, an old cock bird. The observations respecting them in the last month's calendar are applicable to the present one.

Ducks and Geese.—For the present treatment of these, see last month's observations also.

THE BEE-KEEPER'S CALENDAR.—Dec.

By J. H. Payne, Esq., Author of "The Bee-Keeper's Guide," &c.

The good old reformer (Luther) when asked which wss the first and greatest of all the Christian graces, replied, "Humility!" and upon being again asked which was the next, replied, "Humility!" the question having again been put to him as to which in his opinion would be the third, replied again, "Humility!" Now, somewhat in a similar manner to which this good man replied to these most important questions would I reply to a request of a very different nature so often put to me, as to what is the chief thing to be observed in constructing a bee-hive either of straw or wood, and in the establishment of an apiary generally; and say, Simplicity—simplicity—simplicity! I have very recently been favoured with descriptions and drawings of some newly-invented hives; they are very clever, ingenious things, and in the hand of their inventors I doubt not may be made to answer exceedingly well; but I would venture to say that in the hands of other persons they would prove a failure in nine cases out of ten. There is too much complication and machinery about them, which, in bee management, is always attended with much trouble and inconvenience.

I am happy to inform my apiarian friends that Mr. Taylor has made a further improvement in his "amateur's bee-hive;" that is, he has simplified it. It will be called "*The Improved Amateur's Bee-hive.*" It is more simple, more useful, and easier to work; uniting, at the same time, economy and better appearance than his "amateur's bee-hive" figured at page 306 of vol. i. of The Cottage Gardener. There are also glasses adapted to it, for those who prefer their use. Perhaps at some future time I may give a drawing and description of it.

I have just learned from an apiarian friend, who is living in a rural district, that that little destroyer, the blue titmouse (*Parus major*, of Linnæus), which I mentioned in my last calendar, is beginning to resort to the hives, and to commence its work of slaughter. Every possible means should now be used to thin their numbers, both by shooting and trapping, or in any other way that may be found most effectual, for the life of a bee is doubly valuable at this season of the year.

Let the floor boards of each hive be again cleaned in the same manner as directed for last month, and let the hives be well examined, that they are free from mouldiness and dampness; that the coverings be all sound, and that no rain be admitted through them. Select for this examination a fine clear day, but without frost. On no account let the hives be removed during a frost.

The population of the hives will now be found to be very much reduced, but alarm for their safety, on that account, need not to be entertained. It has been frequently said to me, "What becomes of the bees managed on the depriving system, if they are never suffered to swarm nor are destroyed?" To which my reply has been, that it is well known to those who are conversant with the care of bees, that their numbers decrease greatly in autumn, not only by the destruction of the drones, but also by the unavoidable deaths of many of the workers, owing to the thousand accidents they meet with in the fields, and owing to age. A much less space, therefore, is required for them in the winter than was necessary in the summer months. Mr. Purchas, who was a very careful observer, says, in his treatise on bees, published in 1657, "It is manifest that the honey-bees are but yearly creatures; they live but a year and a quarter at most; for those bees that are seen in May, lusty, full, brown, smooth, and well-winged, will, by the end of July following, begin to wither, become less, look gray, and have their wings tattered and torn, and be all dead before the end of August."

MY FARM-YARD.

Gloomy, dreary November is passing away, and December is approaching nearer and nearer, and with it all the numerous preparations for Christmas—that time of bustling and rejoicing, as well as of thankfulness and liberality. And, as I know most of my readers will be busy too, I think I cannot employ my pen better than in telling the "gude wife" how to proceed when her husband has brought in the pig, "killed and scalded," that they have fatted with so much care. Well, in the first place, you must remember that every part of the pig is "good for man." Directly it is killed, take the inside to the pump; clean it thoroughly; then cut it into bits, and fry it with onions, parsley, and any other herbs you may have. This, with potatoes, will make a capital dish for a large family. The blood of the pig should be put, whilst warm, to the roots of some favourite fruit-tree. Some people make "black puddings" of it, but I prefer using it as manure. For the second day's dinner, you can have the lights; they make an excellent dish baked, with a common crust over them, and well seasoned with herbs. Then there is the liver, which, unless you are a large party, will last two days: this you will fry plainly. With this arrangement, you have a good wholesome dinner for three or four days, according to the size of your party. When your pig is cut up sprinkle it well with salt, and let it hang a day; then place it in your salting-tub, and rub it well with salt, which you must do every day for at least three weeks; the harder you rub it the better it will be. Do not let the pork soak in the brine, but pour whatever liquid there may be in the tub away every third day; at the end of three weeks, or, if the meat is thick, a month, wipe the salt off, and, if you burn wood, hang it up your chimney to dry. If you cannot manage that, you must be content with laying it along the ceiling of your cottage. If you follow these directions, I can promise you as nice a piece of salt pork for your Christmas dinner as you would wish to have; and, when your neighbours wish you a "merry Christmas," you need not turn away with a heavy heart as you think of the empty cupboard and bare table; for, although you may not sit down to a dinner of "roast beef and plum-pudding," yet, let me tell you, those who "fare sumptuously every day" would not despise a dinner of home-cured bacon, home-made bread, and home-grown potatoes. How much more, then, will the man who has worked hard all day be pleased, when, on reaching home, he sees the clean cloth laid, and on it steaming the produce of his own industry! Add to this, a smiling wife, and children, to welcome him home, and the picture will be complete. I wish such a sight were more common; and it would be, if more gardens were cultivated, more pigs kept; for then the wife and children would have constant occupation, and there would be no time to sit brooding over misfortunes, which, even if real, are only magnified by idleness.

The necessity of great cleanliness in the stye cannot be too often impressed on you; and now cold winds have set in, give your pigs as warm a bed as you can. If there are trees near you, collect all the leaves, and throw them into your stye: I am now collecting quantities, and scattering them over the farm-yard; trodden on by the cattle, they will make excellent manure, and, where straw is dear, will be found of great service. If you have a wood near you, cut as much fern as possible, and keep it till it is dry; it makes a very good substitute for straw. In fact, collect every thing you can for the pig-sty; for, the more manure you have, the better crops you will grow next year; and, consequently, you will be able to increase the number of your pigs. Above all, save the "liquid manure" from the sty. Some of the cottagers near me sink an earthenware brown pan (price 1s 6d) just outside the sty; and by taking out a brick the "liquid manure" runs into it. You can either do this or make a small tank. The former plan is the cheapest, the latter the neatest and most lasting.

Your poultry will not now be in such a thriving condition as the rest of your farm-yard: they are looking dull, and laying but few eggs, as this is the usual moulting season. Directly I observe mine looking very dull I give them four or five peppercorns, and have found it a capital remedy for drooping wings. Should you happen to have a brood of young chickens at this season of the year, you will find great difficulty in rearing them; they must be kept in a very warm place, and only let out when the sun is shining brightly. Rice well boiled and well dried, I find the best food for very young chickens. I find dry food answers better than that which is moistened, but they must always have a pan of clear water near them. But even if you manage them according to the most approved system, you will meet with much disappointment if you attempt to rear a brood so late in the year as November. I have one now, which I am anxious to save, and therefore keep them in a green-house with plenty of fresh air admitted, but still they grow very slowly, and I have lost several. But "nothing venture, nothing have;" and, perhaps, you may be more successful. C. M. A.

WATERCRESS IN GARDENS.

Nothing is easier than to have a good succession of this wholesome plant throughout the year, which I have had all this, to the admiration of most of my gardening friends, and this is the plan I pursued. About the early part of March I procured a handful or two of healthy plants, torn out of a neighbouring brook, and having prepared two small beds of good loamy soil under an easterly wall, I cut the plants immediately into lengths of about three or four inches, prefering those pieces which had the appearance of a little white root attached, and planted them at once with a small dibble, nearly up to the tops in rows, about eight inches apart, and six inches between the plants, watering them well, and shaded them with mats supported on sticks just above the plants for a few days. Every plant struck root and soon began to grow. I kept the beds generally damp by applying the watering-pot nearly every day; by the next month they were so much grown that I could nip off the tops, and supply a good plate for every day in the week; after the tops were first gathered the plants threw out side shoots in abundance and soon covered all the bed, and during the spring and summer produced a substantial crop that there was some difficulty in keeping them down by constant gathering. The only time when they were not so good in flavour or condition was when inclined to seed. I let them all show for seed and cut them off close to the ground, well weeding them, and surface stirred the ground where I could; they soon made fresh vigorous shoots, and have ever since supplied an abundance of as fine heads as any that comes into a market, and that without any farther attention than giving them a pot of water every day during the dry weather. I have this autumn cut one bed close down again, whilst the other is gathered from, and when the severe weather approaches I intend protecting them from frosts. I recommend our friends who have not grown them to try the experiment. I am quite certain they will be repaid for their trouble.

J. W. Gidney.
East Dereham, Norfolk.

MARTYNIA FRAGRANS.

Seeing in the notices to correspondents, at page 56 of your excellent work The Cottage Gardener, you speak of this Martynia as a weedy-looking plant, with very handsome, large, purplish flowers, well worth growing in a warm border, but that the seeds should be sown in February, in strong bottom heat, I beg to add a few more words concerning this plant, as every one may not know that this plant might be called a half hardy annual; at least, this is my conclusion, if the following is sufficient evidence, and many things are found out by such accidents I am about to relate. In the garden belonging to the Rev. the Warden of Winchester College, a self-sown plant of *Martynia fragrans* came up in a bed of Pelargoniums, which had been planted about the middle of May; and, about the middle of June, when I was weeding and surface-stirring the beds over, I saw a seedling of the above-named plant, which, of course, I left, giving it all the encouragement I could to do well with the Pelargoniums. The plant grew very luxuriantly, and commenced flowering early in July, and continued growing, branching out, and flowering up to very late in October. The soil it grew in was very light and rich. The bed in which the plant grew was near the principal walk through the flower-garden, therefore its odd-looking seed vessels, and its flowers too, for an out-door flower, looked so very remarkable that the plant caught the eye of nearly all visitors through the garden; and it astonished many of those who had been in the habit of growing the plant, and even had it at the same time in either a vinery, green-house, pit, or plant-stove. It so happens this Martynia is pretty much of a favourite in this neighbourhood, but this self-sown plant beat them all. It grew very large, flowered freely, and ripened abundance of seeds, which I intend to sow the first of May next in the open garden. Now I have the pen in my hand, I will name a few other plants that self-sow themselves about this garden, and flower the same season. *Canna Indica* sows itself and ripens its seeds in the summer months. *Nicotiana tabacum*, *Ageratum mexicanum*, *Impatiens balsamina*, and *Maurandya Barclayana* come up, flower, and ripen their seeds in the summer months, and sow themselves about the open garden.

Thos. Weaver,
Gardener to the Warden of Winton College.

MY PHYSIC GARDEN.

By a Physician.

No. 2.—Introduction Continued.

And now having, like a garrulous old man, said so much about myself, how shall I describe my physic garden? Shall I begin alphabetically? or shall I commence with that bed of varied-coloured flowers, all in full bloom, beneath my study window? No! both have their objections. I will first tell you of my plan, and then give you the reasons why I do not follow either of the above, which, at first sight, may seem far simpler and easier. All things which are well done must be the results of order and method. In the arrangement of my flowers, beds and borders, it is true, I insist upon the greatest nicety of rule; but that is one of taste and feeling, and relates more to the scientific harmony and blending of colours than to the properties of my plants.

After due consideration, then, and much talk with my learned friend the Editor, I have determined that my plan shall be to follow the natural arrangement, as it is called, and to describe my plants as they are classed together in families or groups possessing some common or analogous likeness. By this means I shall avoid much repetition; it will enable me to generalise to a great extent, and, as a consequence, the reader will be better able to retain in his memory all that I am about to tell him. Besides which, we really do find that plants which approach each other by some general similarity of external form and internal structure, possess, for the most part, analogous, and very often entirely similar properties. A knowledge of this fact enables us to substitute one plant for another, and to use that which we have in the place of another which we do not possess. Thus all the malvaceæ are emollient, the cruciferæ acrid and stimulating, the gentianaceæ bitter and tonic, the labiaceæ aromatic, the apocynaceæ acrid and irritant; and we may, without inconvenience, employ indiscriminately, and wherever we may chance to be, any one member of the same natural family. Of course I speak generally, for there are many exceptions to this rule; and although the anomalies between members of the same families are much fewer than the analogies, it is necessary to warn the reader that they do exist—Botany, like other sciences, being still imperfect.

It is true I might have adopted the same method with my beds and borders, and arranged their contents according to their analogies and their properties. But, then, for the most part, how cold and unvaried would have been their aspect! I confess to something more than pure utilitarianism; and, woe's me! I have a taste. Now, in telling why I do not describe my physic garden according to my beds and the order of their contents, I will give the readers of The Cottage Gardener a few hints upon the theory and practice of arranging flowers, whether in the garden itself, in the drawing-room, or in nosegays. No one, I think, will venture to deny that colours may be combined so as to be either agreeable or disagreeable to the eye. If this be true, as it undoubtedly is, then a wide path is opened for the discovery of the laws governing their harmonious association. There can be no doubt that such laws exist. If they did not, one classification would be as pleasing as another, and no excellence would be found to exist in the colouring of the great masters. The real properties of colours, in consequence of their extremely subtle nature, are not so easily appreciated as those of sound; but as a very close analogy exists between sound and colour, both as regards their respective effects either separate or in union, we may safely apply the principles of thorough bass or harmony to the assemblage of hues and tints, whether in works of art or the scientific arrangement of the parterre. Taking the seven colours of the rainbow as equivalent to the seven notes of the natural musical scale, the order will stand thus:—

Red.	Orange.	Yellow.	Green.	Blue.	Indigo.	Violet.
C.	D.	E.	F.	G.	A.	B.

The red here sounds the key colour of the prismatic series, and corresponds to C, the root note of the musical scale in the natural key, and both would of course be again repeated as the octave or eighth degree of the gamut. Red, then, must be just as prominent in well-conceived pictures as C in musical pieces composed in that key; and the remaining sounds and colours have corresponding functions in the two sciences. I will advance a few arguments in support of the truth of this doctrine; and then the gardener who has read what I say, and ever again makes up an unharmonious nosegay, I tell him plainly he is not worth his meat—or I am in my dotage.

First, the definition of a sentient impression must be similar both as respects the nerves of hearing and seeing and the impulses of their appropriate stimuli, sound and light being respectively rhythmetical or undulatory in their nature.

Secondly, the number of undulations producing the lowest tone in the scale are fewer in a given time than those of the next note above, which are in their turn fewer than the undulations of the remaining notes. Just as in colours, the undulations giving rise to red are fewer in a given space or time than those of orange, which are relatively fewer than those of yellow, and so of the rest.

Thirdly, the primitive colours are red, yellow, and blue, all others being compounds of them, and they occupy the same positions in the primitive series that C, E, and G, hold as constituting the perfect chord in the musical scale.

The points thus cursorily proposed are bold and very general analogies: these are worthy of much closer investigation, but they are quite sufficient in this place to enable us to apply certain principles, first, I believe, proposed by Mr. Macdonald, a London artist, residing in Berner-street, to the arrangement of flowers according to their colours, either in gardens or in bouquets.

In music, when a chord is struck, in order to be effective, all its notes must be equally full and well balanced. Now, breadth of colour corresponds to length of tone; and the terms "depth," "strength," and "richness," seem to be generally applied to both, to express similar and analogous properties. All these points must be borne in mind in the arrangement of flowers. Thus the masses of red in coxcombs and sweetwilliams would be but inharmoniously balanced by the yellow disks of double daises, or by any small flower of that colour with thinly scattered blossoms; or their depth and richness would be poorly matched by the pale and delicate tint of some primroses, even though its breadth or fulness be sufficient. Of course the general figure, size and character of every plant, but particularly its inflorescence, must be considered with reference to its association with others, where it is to supply any special colour to complete the harmony.

And now, with regard to the choice of colour, so as to produce the most pleasing effect when placed in proximity to each other, I must at once refer to the laws of thorough bass or counterpoint, by which musicians are enabled to supply harmonies to any melody with scientific precision. These I shall endeavour to simplify and explain, so that even the cottage gardeners may employ them in mingling colours to the best advantage, but especially to the harmonious arrangement of his flower-beds. Every one knows that, for the convenience of musicians, the notes of the scale are both numbered and lettered —the first seven letters of the alphabet and cardinal numbers being used. Thus, in the key of A, the scale is numbered and lettered as follows:—

A.	B.	C.	D.	E.	F.	G.
1.	2.	3.	4.	5.	6.	7.

Now, it does not signify what note we may start from, for the constitution of every key is the same, and only differing in the pitch being high or low, as the case may be. The key of C, however, is chosen by musical men as a standard, and hence called the natural key. As such I shall adopt it in the present notice. The order will then be as in the following table, to which I also add the equivalent colours:—

C.	D.	E.	F.	G.	A.	B.	C. (octave*)
1.	2.	3.	4.	5.	6.	7.	8.
Red.	Grey.	Yellow.	Green.	Blue.	Indigo.	Violet.	Red.

Now, in harmonizing tunes composed in this key, four grand chords are employed—that is, four combinations are chosen out of these seven notes, and severally used when they will apply as accompaniments to the notes of the subject or air. These chords, then, in letters, numbers, and colours, being known, the scientific or artistic gardener may modify them, invert them or change their position, and alter the arrangement of their fundamental constituents at his own pleasure. The chords are as follows in their natural position:—

I.—THE COMMON CHORD OF C I, RED.

Natural position.	First change.	Second change.
5. G, blue	1. C, red	3. E, yellow
3. E, yellow	5. G, blue	1. C, red
1. C, red	3. F, yellow	5. G, blue

II.—THE COMMON CHORD ON F.

Natural position.	First change.	Second change.
1. C, red	4. F, green	6. A, indigo
6. A, indigo	1. C, red	4. F, green
4. F, green	6. A, indigo	1. C, red

III.—COMMON CHORD ON G, BLUE.

Natural position.	First change.	Second change.
2. D, orange	5. G, blue	7. B, violet
7. B, violet	2. D, orange	5. G, blue
5. G, blue	7. B, violet	2. D, orange

The fourth table may in the same manner be constructed on the key of F, green.

Surely I need add no more upon a subject which I think every reader must now thoroughly understand. Having said thus much by way of introduction, I will proceed to tell of my plants and their uses; and first, of the Ranunculaceæ.

OUR VILLAGE WALKS.

(No. 8.)

What a merciful provision is made for man's comfort by the simple circumstance of the fall of the leaf! We have seen leaves withering on the ground year after year; we are grieved at their disappearance from the beautiful woods, and we cease to wander in search of scenery while the trees are bare and desolate. Winter, to all but the ardent lover of nature in all her variations, is a dreary, joyless season. But we, perhaps, disregard the mercy attending this wise and wonderful arrangement of the Most High. If the trees in our cold latitudes never shed their leaves, if their beauty was never disfigured, how could the faint sickly sunbeams of winter pierce through their density, and dry up the heavy moisture that at this season soaks the earth, and would so much injure animal and vegetable life, if left to exhale unhealthy vapours beneath perpetual shade? Wise men dive into those amazing and perfect laws of God, which we call science, whereby He directs and carries on the mechanical existence of all His hand has formed; and He graciously permits the human eye to see some of His wonders, and great and beauteous are they all! But why some trees in winter shed their leaves, and some do not,—why in some climates there is almost perpetual verdure, and in others scarcely a tree or bush to decorate the scene,—needs a still brighter light than that of science to reveal. "Out of the whirlwind" must we be taught like Job.

There is still beauty in the land. Here and there I see the beautiful berries of the wild vine, like large red currants, wreathing the bare stems of the hedge, and decorating the path as much by its glowing fruit as by the graceful festoons of its summer foliage. The wild rose-tree, too, is this season covered with an unusual abundance of its bright scarlet seed pods, and, in the absence of summer flowers, we are delighted to see them gleaming in the few sunbeams that cheer us now. There is virtue even in these bright berries, so well known by the name of hips. If the pulp is separated from the seeds and skin, and beat up into a conserve with sugar, it is a pleasant and beneficial remedy for coughs. The flowers gathered in the bud and dried are a very powerful astringent, more so even than the red roses usually dried for this purpose.

Some cottage gardens still look gay with the pale, delicate China roses clustering round the window. A very few days ago I saw a beautiful crimson rose growing against a sheltered cottage wall; and anemones, violets, and lilac primroses are still decking the borders in some places, as if to give us one last glimpse of summer beauty before the stern hand of winter shuts them in. The ivy is becoming now very valuable to us, both as a screen and an ornament. I never remember to have seen such a profusion of this beautiful creeper as I have this year. The shrubbery, the very woods have been carpetted with it: it has forced its way among the tall coarse grass, thickened round the roots of trees, and quite clothed the ground in many places, giving much additional beauty to the copse, and also to the pleasure ground. As a creeper, the ivy does not blossom; but, when springing upwards, and climbing round the stems of trees, or against walls and houses, it is covered with the most starry-like flowers, and is, at that season, a very beautiful object indeed. Does not this teach us a lesson? While we grovel on the earth, minding "earthly things," and "speaking of the earth," we can bear no fruit—we are "of the earth, earthy;" but when our hopes and affections spring upward, and are set on "those things that are above," then only do we bring forth fruit with perfection. Our beautiful wild ivy, therefore, has instruction to give to the passer-by. Let it warn us to "arise from the dust," and cling faithfully to Him from whom alone our "fruit is found."

Wasps hover in great numbers around the flowers of the ivy, as if taking their last meal before they disappear. The beautiful little green berries that succeed the flowers embellish the plant till very late in the year; they tip the little cluster of spikes from which the blossoms fall, and very much resemble the original bloom. An infusion of these berries is an excellent remedy in cases of rheumatism; and the leaves boiled in water would be invaluable to cottagers, if they would use so simple a cure. Want of cleanliness, too, often causes very unpleasant effects, and if the mother would wash the heads of her children in this decoction, it would entirely restore them to health and comfort. I always grieve to see a tree laden and oppressed with a mass of ivy; yet, what a beautiful object it is, especially now, when all around is desolate. Sometimes, in a secluded spot, we open upon a single tree, standing quietly muffled in a green, glossy mantle, as if comfortably wrapped up from the cold. In a wintry scene, such a mass of verdure is very refreshing to the eye, and it has reminded me, too, of Truth standing calm and unchangeable amid the lying vanities of this poor perishing world. How delightful it is, too, at this season, to see the bright green lines in the ploughed fields, marking the springing up of the young wheat—England's staple commodity in the days of her highest prosperity. Let us pray that it may always continue so, that there may be no complaining in our streets. The wheat is a plant deeply interesting to the Christian also: it is selected to assure us of one great and glorious truth; it answers the solemn question, "How are the dead raised up? and with what body do they come?" Very simple things teach us very deep lessons; and it has pleased a gracious Father to impart strong consolation by means of this beautiful figure, so frequently before our eyes, and so easy to be understood. Let us hear its voice. Let the bright blade, springing from corruption, from the grain "which is not quickened except it die," picture to our hearts this precious truth—"Now is Christ risen from the dead, and become the first-fruits of them that slept."

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* The first note, in effect, is repeated eight notes higher, and hence called the octave.

Country walks may in this way become doubly interesting and very instructive. Only let us set our hearts by the word of God as we set our clocks by the sun, and then we shall never go wrong; our eyes shall see, our ears shall hear, and our hearts shall perceive and understand.

CELERY CULTURE.

The uniform kindness and urbanity with which you acknowledge, and the readiness with which you admit into the pages of The Cottage Gardener, communications, however humble they may be, provided they contribute something to the common stock of experience, induces me to offer you my mite in the shape of a few observations on the cultivation of celery, and its importance in a culinary point of view, a subject which suggested itself to me on reading the practical remarks on the different methods of treating this plant by your correspondent C. in the concluding Number of vol. ii. of your valuable periodical.

In the majority of gardens celery appears to be grown solely for its estimable qualities as a salad, to be eaten in its raw state, and certainly a most delicious relish it is, especially as an adjunct to good old cheese; but as thus eaten it can scarcely be regarded otherwise than as a luxury, and owing to the amount of manure, room, and attention required in its cultivation, of too expensive a nature to admit of its being grown to any great extent as such except in the gardens of the wealthy. There is, however, another and less common but more profitable mode of using it, to which I here wish to direct attention, and in consideration of which I think a far higher importance attaches to its culture; for in virtue of its employment as a culinary vegetable, which is that to which I here allude, it might be advantageously grown on a larger scale in many gardens where it is now almost a stranger, and even profitably introduced into those of cottagers, whose small dimensions, and considerations of the *pot*, preclude anything in the shape of a mere luxury. I think those who have been accustomed to use it—as I have for some years—as a culinary vegetable will agree with me in thinking that it has claims to be regarded as one of the best and most palatable autumn and early winter vegetables we possess, and far superior to the coarser kinds of greens, such as cabbages, savoys, kales, &c., with which the generality of gardens are alone stocked at this period of the year; and let those who have never eaten it in this form try it either simply boiled, and eaten like any other vegetable with roast and savoury meats of any description, or served with white sauce, or melted butter, or, better still, stewed in a little gravy for a short time after boiling, and I think they will be of my opinion, and thank me for the recommendation. But in thus advocating its general use as a culinary esculent I am far from wishing that it should supersede its employment in the usual form; on the contrary, it might be economically applied to both uses conjointly, for much of what is discarded as unfit for eating in a raw state will serve admirably for cooking purposes; indeed, all the blanched portions would do for this (though the whole plant cut down the middle is certainly preferable, and makes a handsomer dish), and the heart might still be reserved for salad.

Now, with respect to *cultivation*. The conclusion I have come to, after some years' experience, is, that in order to produce celery of a superior quality, as well as size, it should have not only a liberal allowance of well-decomposed farm-yard manure in the outset, but, in addition to this, frequent and plentiful supplies of liquid manure throughout the early and middle periods of its growth—that is, from the time the plants in the trenches begin to grow freely until the earthing up has been carried so far as to extend beyond the limits of the trench—and even after it has attained to this stage I find it very advantageous to continue the supplies of liquid, which is easily done by making a perpendicular cutting through the soil down upon the trench about eight inches from the plants, and thus making a sort of canal for its reception. This operation is only required to be done on one side; for if the cutting be made so as to fall within the trench, and the canal opened down to the surface of the manure, the latter will act as a sponge, and, sufficient liquid being given, will saturate the whole body of manure in the trench.

With regard to the three different methods mentioned by your correspondent C., I do not think it materially matters which of them is adopted, provided the above conditions relative to the abundant supplies of liquid manure are properly observed. That of *Mr. Nutt* is, perhaps, best calculated to bring the plant to the gigantic proportions for which he is so celebrated, but it involves a larger expenditure of manure than most gardens can well afford, and *Mr. Turner's* plan, with less than half the quantity, is better adapted for general crops. The latter is the one I have usually followed, but this year I have adopted a modification of it, which has succeeded so well that I would strongly recommend those who are limited either in respect of room or manure to make trial of it. I form and fill the trenches as recommended by Mr. Turner, the only difference being that I allow a few inches greater width (two feet and a half instead of two feet), but, instead of a single row of plants at twelve-inch intervals, I plant a double row at these distances in each trench, arranging them thus. ° o ° o ° o ° The advantage of this arrangement in the saving of room and manure must be obvious, the only question being as to the comparative weight of produce. Now, the result of the trials made this year to ascertain this important point goes to prove that the plan of planting in double rows loses nothing by comparison with the other. I planted three trenches, 24 feet in length, with double rows, with the exception of about one-third of their extent, which in two of them were planted in only single rows, the distance from plant to plant, and the treatment in every other respect, being the same in both cases. During the first stages of their growth the double rows had certainly the advantage, and this they maintained, more or less, until their final earthing, when no perceptible difference could be detected in the appearance of either, and ultimately the weight of the sticks in the single and double portions of the respective trenches were as nearly as possible equal, averaging now from four to five pounds each, and some upwards. I have also a very good late crop on *Mr. Barnes'* plan, which I think a very excellent one, and, of the three, the best adapted for the smaller class of gardens, inasmuch as it admits of a larger number of plants being grown on a given space and quantity of manure, and is more easily protected from frost. But again I must insist on the necessity of plenty of liquid, for without this I do not think it possible to obtain celery of that crispness, sweetness of flavour, and solidity of texture, which constitutes its perfection. Solid manure may give it size, but in the absence of sufficient liquid the heart and leaves will be always, more or less, pithy and hollow; such, at least, has been my experience on the light porous soil of my garden. In the early stages, and in dry weather, the liquid manure should be weak and copiously supplied, but when the plants have attained the height of 18 or 20 inches, and particularly in dry weather, it may be given in almost any degree of concentration. It should not, however, be poured in contact with the plants, to avoid which it is advisable that the surface of the trench at the sides be left an inch or two below the original level of the ground in which it is dug, and also after the plants are set out that it should shelve slightly downwards from the centre towards the outside edges. In this way a sort of gutter is formed, along which the spout of the watering-pot can be made to traverse, and within which channel the liquid will necessarily be confined. W. C. G.

BEAN PLANTING.

If the weather should prove favourable, and the ground rich and good, a crop may be planted to any extent in the last week of this month, or the first week in December. The better the ground is, the better the bean does in it. I have used very strong pig manure for many years, and at a very bountiful rate, and planted my principal crop of beans at the time above mentioned; and, what is more, I do not know who has finer crops of this vegetable every year. The sort of bean I plant principally at this time is called *Johnson's Wonderful*. I have heard it called also *Jameson's*. It is an excellent hardy sort, a real good bearer, and the best of long pod varieties. To plant them, if in light soil, well manure and dig the quarter first; then measure out the rows from two feet six inches to three feet apart; then strain the line, from north to south, along the quarter; put on your apron, if you have one, if not, take your nailing pouch, to hold your seed handily before you; then take the dibble, and make holes right and left of the line, about two and a-half inches deep, or if three inches, none the worse, and quickly drop in the seed with the left hand. Let both hands work quickly, and keep your two feet close to the line, rather dragging them along, which will cover the seed nicely, and leave your work in a neat and tidy order. On the other hand, if the soil be a very retentive one, I would prefer digging the quarter and planting it as I went on, as before recommended for potato planting.

T. Weaver, *Gardener to the Warden of Winchester College.*

EXTRACTS FROM CORRESPONDENCE.

Prize Gooseberry Trees.—This being the "sear and yellow leaf" season of the year, and consequently the best time for planting all kinds of fruit trees, I will give the readers of The Cottage Gardener the benefit of my experience in the way of purchasing prize gooseberry trees. Having read the communication of a contributor at the commencement of the present year on the weight and names of the best prize gooseberries in cultivation, I was induced to apply to the same writer for a supply, who referred me to a firm at Manchester, from whom I procured a catalogue of all the prize kinds, at prices which the poorest amateur could not cavil at. I then ascertained the cost of carriage, per rail, from thence to here, near Newcastle-on-Tyne, a distance of upwards of 100 miles, to be only 1s 6d per cent. On this I acquainted my neighbouring cottage friends of my intention of having a supply, who to the number of about twenty joined me, and we got a number of all the best sorts, as recommended in The Cottage Gardener, which averaged £2 14s a gross; and although they were not planted until March, some of their fruit actually got to the weight of upwards of 21 dwts. by autumn, and all have turned out beyond our most sanguine expectation. This week (November 12th) we have got another supply, which trebles our former order, and it is our intention this year of having a gooseberry show in our parish, which, it is to be hoped, will be the means of raising a spirit of honest emulation among us, and encourage a taste for the delightful pursuit of gardening. Should this be the means of inducing other parties to get some of the prize kinds, they will soon find that they surpass the old sorts not only in profitableness but also most of them in flavour.—G. J. Bell.

Wall-flower Cuttings.—Sometimes things grow at a season unseasonable, as I have reason to know. On the 24th March last, I got a large branch of the finest Golden Drop wall-flower I ever saw. It was in my power to get it then, but it would not be so at a later or more genial season. I set all the slips I could get (about 20) on a sheltered bank, having a western exposure, kept them covered with a cap, and sheltered and shaded with a bass mat as cold or heat made necessary; and though they were slower in rooting than usual, I have 15 nice plants of them now. I think it would be well if gardening books said, "Cuttings of —— succeed best in (suppose) May, June, and July; but there is yet a chance in

November and December," &c. There is so much ignorance in the world.—C. C.

[Our correspondent is quite right in supposing that cuttings will strike, and seedlings may be raised *with proper care*, such as he bestowed on his wall-flower slips, and we shall always be glad to hear of such results. But we cannot agree that authors on gardening should state any times for doing any given work but those which are best. If the teacher were to tell his pupil he *might* succeed in an operation at any time, although but one time was the best, we fear that the spirit of procrastination would be too much encouraged.—Ed. C. G.]

Himalayah Pumpkin. — Grimstone's Egyptian Pea.—The seed I now send you was taken from a pumpkin weighing 23 lbs., one of the produce of the plant raised from the single seed you were so kind as to send me, and which you informed me was of a new variety from the Himalayah mountains. Two other fruit from the same plant were smaller, weighing severally 20 lbs. and 12 lbs. From a plant of another kind, the seed of which I obtained from Manchester, I have succeeded in growing a very fine pumpkin, weighing 61 lbs., and measuring very nearly five feet in circumference! The colour of the largest of the Himalayah pumpkins was of a much deeper and richer tint than that of the larger kind, and the flesh made into soup, according to your directions, was remarkably good, and astonished some of my friends who partook of it; baked in tarts, with an equal quantity of apples, it was also very good, and imparted a flavour and richness to them which, to my taste, was a great improvement on the apple alone. Have you ever seen or grown *Grimstone's Egyptian Pea?* I procured a few from that gentleman last year—30 peas, at the somewhat exorbitant price of 2s 6d. They are immensely prolific, the main stem throwing out from six to ten lateral ones, all of which are as productive as the stems of ordinary peas; on this account they are only sown at intervals of eight inches from pea to pea, and as they scarcely exceed 2½ feet in heighth they require very little sticking.—G. C. W.

Autumn-planting Potatoes.—As you have constantly advocated the practice of planting potatoes in autumn, I have given it a trial, and must first state that my soil is heavy, therefore I have been in the habit of mixing ashes, sand, and manure, which have made the garden very prolific. My plan has been to obtain mealy potatoes from a light soil every two or three years, as they were apt to become waxy after being used two or three seasons. Last year they suffered from the disease, and yielded about three parts out of four, but many more became affected after being stored. Last autumn I planted three rows, which looked well and free from the disease till after they blossomed; I then observed spots indicating the approach of the disease: they continued to get worse, and at last yielded about one peck out of four, and these not mealy potatoes. Those planted in the spring showed symptoms of being affected very early, and never blossomed: I found, upon taking them up, that very few were sound, not more than a dozen out of a bushel. I have been in the habit of planting full-sized tubers, as I always consider small potatoes as immature and unfit to use as seed. I do not use any manure at the time of planting, the ground having been previously used for other vegetables.—W. S. B., *Barrow, Suffolk.*

[Although this is in favour of autumn-planting, those then planted by our correspondent being best of the bad, yet he has not done what all growers of potatoes ought to do—plant in moderately rich soil, and varieties ripening in July or early in August.—Ed. C. G.]

Ducks as Slug Destroyers.—Amongst the many means proposed for destroying slugs, I do not see that you have recommended the employment of ducks. Two young ones I had hatched this summer have nearly cleared my garden, which used to be sadly eaten up; they have also learned to pick the caterpillars off the cabbage plants, and really do but little damage to the garden. I have this year planted the *celery* in short rows across the bed, as proposed, with success. I can also bear my testimony to the advantage of *early planted potatoes*. Those planted in January were all up and stored, a plentiful and clean crop, before the wet set in, and the ground planted with turnips, while those put in in April in the same garden were lifted after the rain, a poor and much damaged crop.—G. McLeod.

Sheffield Celery Show.—At this show, held in October last, out of twelve prizes *eleven* were awarded to plants of Mr. Nutt's *Champion celery*. The tallest sticks were *forty-eight* inches long: and the heaviest pair seen by Mr. Nutt this year weighed 16 pounds and 9 ounces. We can bear testimony that this celery grows as superiorly in the south of England as it does in the north; for in our own garden we have never had before celery so fine, so crisp yet tender, or so sweet and mild in flavour as that we have grown this year of *Nutt's Champion.*

Poultry, Slugs, Woodcocks.—The following fact may be worthy of notice, as it is a remarkable one, and shows that it is more profitable to keep poultry well fed than to be overstocked. Last year, 1848, my father kept two ducks and a drake; the ducks laid nearly 150 eggs, and being more than we wanted we parted with several; however, we put some of the eggs under hens, and reared 86 ducks, and they were fit to kill when seven weeks old. I believe nearly all the eggs we spared were hatched. This year we have met with similar success. We put the young broods in the garden, and I must say there is not a better slug-trap mentioned in your volumes. When there were so many methods proposed for destroying these mischievous pests of every garden, I was about to recommend this one; but one morning I noticed one of the broods had taken a fancy to a row of Fairbeard's Champion peas, which were just coming up; of course the mischievous brood was removed; the rest, however, did not such mischief. I have noticed the accuracy of your remarks in the weekly calendar of the time the various birds arrive, &c. The woodcock is said to arrive about the 30th October. In this part of the country, however, we find them much earlier. There is an old saying in this district that about the 19th Sunday after Trinity woodcocks arrive; and I have heard an instance of a person picking one up in his garden on his return from church on that day. Several have been killed near this place on the first and second weeks of this present month. —W. H. Venn, Jun., *Whimple, Exeter.*

Phalœnopsis amabile.—I am much pleased to find Mr. Appleby has taken up his pen to instruct the cultivators of orchids. Few men are more competent, or, indeed, so competent, to do it, and I have no doubt many will heartily thank him. There is, however, one observation, relative to *Phalœnopsis amabile*, with which I cannot agree; it is, that it should be placed on a naked log, and that it will not thrive on anything else, and that the roots perish if covered at all. Now, the finest plant I ever saw was grown with a fair quantity of moss on the log, and refused to do well until it had the moss. I have repeatedly had conversations with a friend resident in Java, who grows many of them on his trees in the garden. He tells me they do infinitely better even there when moss is put about them, and that he now uses it to every plant he gets. I recollect the late Rev. John Clowes having a very fine plant, and such was well supplied with moss. I never saw a plant grow faster, or better, than it did; it was always in bloom. I have a great objection to that regular system of yearly repotting recommended by many. I would never repot any orchid whilst it was doing well; "let well alone" is my motto with these plants.—Manchester.

[Our *personal* experience for the last ten years, relative to this plant, fully convinces us that we are right, and that our correspondent is wrong. We will mention one case, and one is as good as a hundred. A plant of *Phalænopsis* was purchased at a sale, just two years ago, by a gentleman, an orchid-grower near Liverpool. It was then a healthy small plant on a log, and the roots were covered with moss. Our correspondent was present at the sale, and may remember the plant. This very plant we saw this autumn, and though it was extremely healthy, yet it had grown very little larger. Nearly at the same time a plant was purchased by Messrs. Henderson, at Stevens's sale-rooms, in Covent-garden, with only a single leaf attached to it, and placed under our care; it was fastened to a naked log, and treated as we have directed. It is now a splendid plant, with five large leaves, the roots are healthy, abundant, growing, and clinging to the block like the branches of ivy to the oak. We only wish our good friend could see them both; we are sure he would be a convert to our mode notwithstanding his frequent conversations with his friend residing in Java. We may mention also that Mr. Gordon, the curator of orchids, at the Chiswick-gardens, does not use moss; neither does Mr. Mylam, gardener to S. Rucker, Esq., at Wandsworth; neither does the gardener at Mrs. Lawrence's, Ealing-park. We might swell the number of names, eminent as cultivators of Phalœnopsis, that do not use moss, and we would advise our correspondent to visit the collections in his own neighbourhood, and we will venture to say in most of the places where it is grown he will find it grown upon naked logs. Yet we are glad our highly respected friend has brought this point into notice; we shall be most happy to change our opinion and practice if it can be proved that to cover the roots of this queen of orchids is advantageous to it.—T. Appleby.

TO CORRESPONDENTS.

⁂ We request that no one will write to the departmental writers of The Cottage Gardener. It gives them unjustifiable trouble and expense; and we also request our coadjutors *under no circumstances* to reply to such private communications.

Cryptomeria Japonica (*Pinus*).—This handsomest of the cone-bearers was first raised in this country, from seeds sent home from China, by Mr. Fortune, about six years since. He says that it is most at home in hilly, undulating districts, though he saw noble specimens in the plains, and that, "like the common Scotch fir, it likes a loamy soil."

Index and Cover to Second Volume (*L. L. R.*)—This, as well as the cover for the volume, have long since been ready. We recommend the two first volumes to be bound in one, using the very handsome cover we have prepared for the purpose. Indexes and covers can be obtained at our office through any bookseller.

Antirrhinum Hybridizing (*S. P.*)—To insure a pure cross, you must remove the anthers from the flowers you wish to impregnate with pollen from another plant.

Heating a Greenhouse (*Scrutator*).—If this must be heated by means of "the fire in the kitchen beneath," we recommend you to adopt the hot-water system; and you could not do better than follow Dr. Green's plan, as described in our last number. The boiler might be by the side of the kitchen fire, but so that it need not be heated except when desired.

Bleaching Sea-kale (*One who cannot afford Pots*).—Cut butter firkins in half, and use them as sea-kale pots are used. A still rougher plan is to cover the plants over, a foot deep, with sand or coal-ashes. If you do not wish to force, no covering should be put over the plants until they begin to vegetate in the spring, say early in February.

Forcing Rhubarb in Beds (*A Constant Reader*).—Cover each crown either with sea-kale or common garden pots of 18-inch or other very large size, but chimney pots are still better, the leaf-stalks becoming much longer and finer. Then cover the pots with fermenting dung. A frame is even preferable to pots, formed by driving stakes into the ground on each side of the bed, alternating with the plants. These are to be three feet high above ground, and the space between the two rows of stakes two feet at the bottom, but approaching those on the other side at their tops, and fastened together by means of laths, which also serve to keep the fermenting dung heaped over from falling through upon the plants.

Sulphate of Ammonia (*J. W*).—When making this salt by adding sulphuric acid to carbonate of ammonia, as directed at p. 169 of our second volume, two ounces of the carbonate should be first dissolved in a pint of water, and then the acid dropped in until all bubbling ceases. An eighth part of the solution thus formed will be enough to mix with a gallon of water for watering plants.

Horn Shavings (*Ibid*).—These, if of the stag's horn, will do for making super-phosphate of lime, because they contain 69 per cent. of phosphate of lime; but the shavings of the horns of the ox, &c., will not do for that purpose, for they contain less than one per cent of phosphate of lime.

Recipe for Gourd Soup (*Rector*).—This was published at p. 43 of our first volume, and we can vouch that it is the cheapest of all soups, and very excellent.

Cauliflowers and Brocoli Buttoning (*W. N.*)—The knobs on their roots, each containing a maggot, sufficiently accounts for their buttoning. They are affected with the anbury or club root, concerning which you will find all that is known at pp. 20 and 125 of our second volume. You have done quite right with your *sea-kale*.

Wreaths for the Hair (*T. M. H.*)—Mr. Beaton pleads guilty to the charge of not having written upon this subject, as he promised, but not certainly from want of will, for no kind of writing would please him better; but he has been disappointed this season in his hopes of seeing certain ladies, who visit the family whom he serves, and whose attendants could give him the fashion and *mode* of arranging these wreathes according to the first masters of the art. One of the ladies alluded to has, since his promise was made, been joined in the holy bands of matrimony in the presence of her Majesty, and it may be some time yet before a good opportunity offers for acquiring such knowledge of this elegant art as would enable him to do justice to it; but he will not lose sight of it. The recent paint of a green-house will not harm your *camellia blossoms*, nor cause them to drop, if the air is freely admitted.

Rose Stocks Worm-eaten (*Rhodon*).—White-lead would not injure the top of the rose stock; neither is a light coat of lead paint injurious to *strong* shrubs and trees, notwithstanding all that has been stated to the contrary. Mix enough of soot with it to take off the white glare, and form it into the consistence of putty, and it is a good stopping to wounds and cuts, where these grubs insinuate themselves; but we cannot say, from our own practice, if the application will kill the grubs, but we know it will prevent them, as we are never troubled with grubs after the application, which we use on all our new stocks.

Fern to Grow in a Bottle (*Ibid*).—Any of the very small Aspleniums, or of Pteris, would answer to grow in a large bottle. For instance, Asplenium palmatum—viride and pontanum; or Wall-rue, Asplenium ruta-muraria, and Pteris pedata. Some of the British shield ferns would answer also, as Aspidium lonchitis, fragile, regium, and rhœticum. The last three are beautiful little ferns, and all of them are hardy, and well suited for the purpose. We have enumerated so many, as we all know how desirable it is to have a change, or variety, to amuse invalids.

Amaryllis Formosissima (*Hester S*).—Amaryllis, or, rather, *Sprekelia formosissima*, rests, or should be made to rest, during the winter. We grow about ten dozen of them thus:—At the end of February we pot two dozen, and introduce them into a forcing-house, and every three weeks till the 1st of May a succession is potted and forced; all that remain unpotted on the 1st of May are planted on a rich light border under a south wall, and all the potted ones are allowed to cool down in cold pits after flowering. Before the end of May they are all planted out, watered occasionally, and left out in the autumn till the frost kills their leaves; they then are dried like dahlias. Of all bulbs they are the easiest to flower, and the least expensive to keep, and they bloom from the end of March to Midsummer. Keep yours dry till next March, then pot them.

Fuchsias and Fernery (*H. Y., Ramsgate*).—You may keep your fuchsias through the winter in a loft and covered with sawdust. Sea-sand and mortar mixed will be a good dressing for the soil of your *Fernery*.

Depth of Ploughing (*A Novice in Gardening*).—Plough six inches deep if the top soil will allow of it, if not plough to the bad subsoil. If the top soil is a foot deep, it would improve the land to stir it to that depth, but with a subsoil-plough 20 inches or two feet is not too much to loosen land for any crop, but a bad subsoil should not be much mixed with the surface soil.

Succession of Flowers (*Ibid*).—Plant wallflowers, pinks, carnations, polyanthuses, tree and other violets, anemones, and very low evergreen shrubs, to take off the naked appearance of the flower-beds during winter, after removing from them your geraniums and dahlias.

Roses on North aspect (*G. T.*).—Certainly climbing roses will do on any aspect at Walworth *provided* you make a rich border for them. Plant *Ruga* and *Felicite perpetuelle*, and on the latter you can bud others for a trial; but very few roses will take well on Ruga anywhere, much less on a north aspect.

Fruit Trees, &c., for Australia (*Rev. G. G.*).—Vines and figs are the only fruit-trees that would be likely to reach Australia safe in the shape of cuttings, but which varieties would succeed best we cannot say. Cuttings of all the European grape-vines have been already taken out to Sidney, and freely distributed. Cuttings of trees and shrubs can hardly be taken there; seeds are much the best way of carrying them, and all that you can procure that way will be useful, although not new to the settlements. It is just the same there as here about kitchen-garden seeds; the best sorts are the most useful. You will not be able to effect a cross between our fine *pelargoniums* and the wild tuberous rooted kinds; besides, the latter are not indigenous in Australia, but in South Africa only. There is little doubt, however, but crosses can be had at Sidney which we cannot obtain here. *Bees* have been taken to New Zealand, but we heard they did not succeed well afterwards.

Umbrella-shaped Trellises (*Rev. J. S. Lievre*).—If we had these upon our lawn, we should make each of them the supporters of two weeping roses; say Crimson Boursault and Princess Louise, or Felicite perpetuelle. We should make the soil very rich, and plant immediately.

Tree-seeds for New Zealand (*Rev. P. Fillent*).—We will, *for once*, break through our firmest rule, and say, that if we were to emigrate to New Zealand, or to anywhere else, we would put our case in the hands of Mr. Charlwood, 14, Tavistock-row, Covent-garden, London, for all kinds of seeds, roots, &c., although we have had no business transactions with him these many years.

Potato-planting, &c. (*F. C.*).—Pray refer to our No. 58; we have nothing at present to add to the editorial there published. Your *mushroom-bed* will never supply you with mushrooms enough for making catsup. Their being hard and dry arises probably from a deficiency of moisture. Sprinkle the surface, as required, gently with tepid water.

Heath Cuttings (*Ibid*).—You ask for "the best time for striking these?" But it is impossible to give a direct answer unless we knew the species you wish to propagate. Those which bloom late, and continue to grow even through the winter, such as Erica verticillata, gracilis, &c., will not have the shoots sufficiently matured for cuttings until,early spring. Perhaps, the best general rule we can give is, plant your cuttings immediately the young wood of the shoots is ripe.

Passion-Flowers for South Wall (*Ibid*).—Besides the common, you may grow Herbert's Passion-Flower. The end of June is the best time for planting the main crop of *celery*. You will find abundance of information on its culture in the present and previous numbers.

Names of Plants and Fruit.—(*M. B.*)—The leaf you sent is that of *Scolopendrium officinarum*, the Common Hart's-tongue fern. (*H. W. Livett.*)—Your creeper is *Tropæolum tuberosum*, or Tuberous-rooted nasturtium. (*Hester S.*)—The large white fungus growing just below the surface of the soil is the *Lycoperdon pratense*, or Underground Puff-ball. (*Clericus Rusticus.*)—Your *apples* are—1, Ribstone Pippin; 2, Unknown; 3, Beauty of Kent; 4, Newton Spitzemberg; 5, Sykehouse Russet; 6, Old Nonpareil; 7, Cornish Gilliflower; 8, Russet Nonpareil.

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CALENDAR FOR DECEMBER.

GREEHOUSE.

Air, admit freely when the external temperature is above 35°. Bulbs, well rooted in pots, place in gentle heat for early blooming; keep mice from the successions. Calceolarias, Cinerarias, Camellias, &c., attend to with heat and moisture, according to the time you desire them to be in bloom. Climbers, prune them generally, to give light to the plants beneath them. Train and clean winter-flowering ones, such as Kennedya, Manettiae, and various Tropœolums. Earth in pots and borders keep fresh by stirring. Geraniums, encourage the forwardest when early blooming is desirable. Heaths, keep cool, and give abundanee of air in mild clear weather. Heat, by fires, apply when necessary. Ixias, Gladioli, and the hardier Lilies, pot and set in a cold pit, to be protected from frost. Insects, keep under, by fumigating and scrubbing. Leaves—dirty, wash; decayed, remove. Mignonette, take in a few pots now and then. Primula (Chinese), introduce; water with manure liquid. The double white give a favourable and warm position. Roses, and other Shrubs, introduce for forcing. Salvia Splendens, supply liberally with water, and give it a warm corner. Succulents keep dry, and *Cactus* especially, except the *Truncatus*, which will now be in bloom. Water sparingly, unless when the flower-buds are swelling and opened; give it after breakfast, and with liquid rather higher than the temperature of the house. Temperature, 45° during the day, 40° at night, with from 5° to 10° more, at a warm end, or in a conservatory, for placing tenderer and forced flowers when first introduced. In severe weather, prefer covering, even during the day, to large fires. R. Fish.

FLOWER GARDEN.

Anemones, defend in bad weather; plant, if mild. Auriculas, defend in inclement weather. Bulbs omitted, may be planted if the weather be mild. (See November). Carnations, defend in inclement weather. Composts, prepare. Dig over borders and dress all quarters generally. Edgings, plant. Fibrous-rooted, perennials and biennials divide and plant. Flowers (choice), defend generally from inclement weather. Grass, mow and roll occasionally, if winter be mild. Gravel, roll and keep orderly. Hedges, plant and plash. Hyacinths, defend in inclement weather. Leaves, collect for composts. Mulch round the roots and stems of shrubs newly planted. Plant shrubs of all kinds. Potted Plants, protect in deep frames, &c.; place in hothouse for forcing. Prune all shrubs requiring regulation. Ranunculuses, defend in bad weather; plant, if mild. Seedlings of all kinds require protection. Stake shrubs newly planted, and any others requiring support. Suckers may be planted as removed during the winter dressing. Tulips, defend in bad weather. Turf may be laid in open weather. Water in glasses, change weekly; add a few grains of salt or five drops of spirit of hartshorn.

ORCHARD.

Almonds, plant. Apples (Espalier), prune, &c.; plant, &c. Apricots, plant; prune and train in frosty weather. Brine, apply with a scrubbing brush to stems and branches of fruit-trees, to destroy insects, eggs, and moss. Cherries (Wall and Espalier), prune and train; plant. Chesnuts, plant. Currants, prune; plant. Cuttings of Gooseberries and Currants may be planted. Espaliers, prune and regulate. Figs, protect from frost. Filberts, plant. Fork the surface around fruit-trees. Gooseberries, plant; prune. Layers, plant. Medlars, plant. Mulberries, plant. Mulch, put around newly planted trees. Nectarines, plant; prune and train in frosty weather. Peaches (See Nectarines). Pears, plant; (Espalier), prune, &c. Plums, plant; (Wall and Espalier), prune. Pruning, attend to generally. Quinces, plant. Raspberries, plant; prune. Services, plant. Snails, destroy in their torpid state. Stake and support trees newly planted. Standards, remove dead and irregular branches from. Suckers, plant. Trench and prepare borders, &c., for planting. Vines, plant, prune, and train. Walnuts, plant. Wall-trees generally, prune and regulate. Walls—it is a very beneficial plan to paint these by means of a white-washer's brush, with a liquid mixture of 8lbs. lime, 4lbs. soot, and 8lbs. sulphur. It destroys and banishes insects, as well as by its dark colour promoting the warmth of the wall. The liquid employed in which to mix the above should be urine and soapsuds in equal proportions.

Any trees proposed to be regrafted in the spring may be *headed down* now in open weather, but the stumps of the branches should be left sufficiently long to permit a few inches more to be cut off at the time of grafting. R. Errington.

PLANT STOVE AND FORCING HOUSE.

Air, admit as often as circumstances permit. Apricots (see Peach). Bark-beds, stir, and renew, if heat declines. Cherries (see Peach). Cucumbers, in pots, introduce; water frequently, and train. Figs (see Vines): they should be in pots in the Vinery. Fires: beware of too much fire-heat. Flowers, in pots (Roses, Carnations, &c.), introduce where room. Kidney Beans, sow in small pots, not larger than 48s; water frequently when up. Light, admit as freely as possible. Mats, put over glass in very severe weather, even in the day-time, if really necessary. Mushrooms, attend to the beds; water if dry; renew exhausted portions on shelves; they require a moist atmosphere. Nectarines and Peaches in blossom keep at about 55° during the day, and at night about 40°; water very sparingly; shake branches gently to distribute the pollen; stir earth around often. Pine Apples (fruiting) require increased bottom-heat to about 75°; water more sparingly; temperature in house from 60° to 70°. Salading, in boxes, sow successively. Sea-kale and Asparagus, force successively. Stove, temp. not above 60° in the day, and at night 40° to 50°. Strawberries, in pots, introduce; when blossoming, water frequently; day temp. not more than 60°. Thermometer, watch its dictates. Vines, in leaf, keep about 60°; in blossom, about 70° during day; at night, 50°; protect stems outside by haybands; give liquid manure, if dry. Wash the leaves of all plants, as requisite, either with a sponge or by watering. Water, soft and warm as the house, apply as requisite; in pots, &c., keep constantly in the house.

R. Errington.

KITCHEN GARDEN.

Artichokes, dress. Asparagus-beds, dress, b.; plant to force; attend that in forcing. Beans, plant. Beets (Red), dig up and store, b. Borecole, earth up. Brocoli, lay in with their heads to the north. Cabbages, plant; earth up. Carrots, dig up and store, b. Cauliflowers, in frame, &c., attend to. Celery, earth up, and protect when necessary. Coleworts, plant. Composts, prepare and turn over. Dung, prepare for hotbeds. Earthing-up, attend to. Endive, blanch. Hotbeds, attend to. Kidney Beans, force, e. Leaves, fallen, remove. Lettuces, plant in hotbeds; attend to those advancing. Liquorice, dig up. Mint, force. Mushroom-beds, make; attend to those in production. Parsnips, dig up and store, b. Peas, sow; both in the open ground and in hotbeds; attend to those advancing, protecting them from frost, mice, slugs, and birds. Plants to produce seed, attend to, b. Potatoes, plant in hotbeds. Radishes and Small Salading, sow in frames, &c. Spinach, clear of weeds. Tansy, force. Tarragon, force. Trench, drain, &c., vacant ground. Weeding, attend to.

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WEEKLY CALENDAR.

M D	W D	DECEMBER 6—12, 1849.	Weather near London in 1848.			Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
6	Th	Nicholas. December moth seen.	T. 57°—40°.	S.W.	Rain.	53 a. 7	50 a. 3	11 42	☾	8 40	340
7	F		T. 55°—50°.	S.	Rain.	54	50	morn.	23	8 14	341
8	S	Conception B.V.M. Skylarks in flocks.	T. 57°—48°.	S.W.	Rain.	55	49	0 53	24	7 48	342
9	Sun	2 Sun. in Advent. Laughing Goose	T. 57°—33°.	S.W.	Fine.	56	49	2 2	25	7 21	343
10	M	Ash-destroying beetle found. comes.	T. 60°—29°.	S.W.	Rain.	57	49	3 10	26	6 53	344
11	Tu	Grossbeak sometimes seen.	T. 60°—38°.	S.W.	Fine.	58	49	4 16	27	6 26	345
12	W	Winter Tortrix moth seen.	T. 55°—37°.	S.W.	Fine.	59	49	5 20	28	5 58	346

St. Nicholas, a native of Patara, in Lycia, was so celebrated for his piety, that Constantine the Great raised him, whilst a layman, to the bishopric of Myra, in Syria, where he died on this day, A.D. 343. So diffused were his benefits, that many classes, from children up to bishops, were considered as under his especial patronage; but on the present occasion we will confine our attention to the fabled origin of his tutelage of schoolboys. Two young students, journeying to Athens, were directed by their father to visit Bishop Nicholas by the way. Arriving late at Myra, they lodged for the night at an inn, where the landlord murdered them, and salted down the pieces of their bodies for the purpose of selling it as pickled pork. The murder was revealed in a vision to the bishop, who, on the morrow, not only was the agent in miraculously re-uniting the dismembered bodies of the boys, and restoring them to life, but also of converting the murderer into a devout Christian! This, says the legend, sufficiently explains the naked children and tub which are the well-known emblems of St. Nicholas. A curious custom, which prevails at some schools, has reference to this guardian saint of boys, and may be remembered by the reader. When a boy at any game of speed or activity requires time to recover breath at those schools, he brings his antagonist to a halt by crying out *Nic'las*. We remember another protective cry in our boyish contests, *S'cruce*, which, we think, must be a contraction of *sancto cruce*, and have reference to finding sanctuary by taking hold of the nearest cross.

Conception of the Virgin Mary.—This event was believed by many to have occurred in a house that subsequently was brought by angels from Galilee to Loretto in the year 1291. This legend, which became so popular, soon rendered Loretto one of the richest places in the world. Pilgrims flocked thither, and a munificent church, speedily enclosing the "holy house," was sufficiently endowed by their votive offerings to "Our blessed Lady of Loretto."

Meteorology of the Week.—The average highest temperature of the above seven days, as shown by the Chiswick Garden tables during the last twenty-two years, is 47°, and the average lowest temperature 31.6°. During the same time, the highest point the thermometer indicated was on the 9th, in 1817, when the mercury rose to 57°, and it fell the lowest on the 6th in 1846; for it then sank to 14°. During the twenty-two weeks, rain fell on seventy-two days, and the other eighty-two days were fine.

Natural Phenomena Indicative of Weather.—We know people who can tell whether an *east wind* is blowing as soon as they arise in the morning; and many nervous persons are troubled by its influence during the night with imperfect sleep, headache, and confused dreams. It is remarkable that good astronomical observations cannot be made when the wind blows from the east. Frequently when the celestial objects seem to wave about before the telescope, an east wind follows, the cause of the waving being the occurrence of the current from the east having before set in from that quarter in the higher regions. These phenomena have never been explained satisfactorily. The whole creation so suffers from the malign influence of the easterly blast, that it has become a proverb—

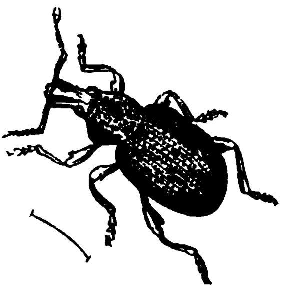
"The wind when in the east
Is bad for man and beast."

"The south may bring moisture, and the north whiten the ground; but, though the latter is cold, it is bracing, and neither is absolutely disagreeable. The east wind and its companions are the unwelcome visitors—and why is it so?" Philosophy has found no reasonable reply to the query.

RANGE OF BAROMETER—RAIN IN INCHES.

Dec.		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
6	B.	29.761 29.582	20.223 30.210	30.358 30.316	30.216 30.203	29.495 29.454	29.811 29.732	28.837 28.550	29.376 29.215
	R.	0.30	—	—	—	0.01	—	0.17	0.05
7	B.	29.868 29.793	30.333 30.309	30.287 30.073	30.294 30.292	29.990 29.634	30.127 29.904	29.202 28.611	29.670 29.505
	R.	0.15	0.01	0.01	—	—	—	0.01	0.15
8	B.	29.478 29.391	30.404 30.389	30.212 30.153	30.172 30.058	30.156 30.0'4	30.231 30.147	29.725 29.528	30.015 29.775
	R.	0.01	—	—	—	0.06	—	0.16	0.01
9	B.	29.865 29.708	30.297 30.282	30.288 30.270	30.119 30.104	30.171 30.109	30.161 30.084	29.707 29.538	30.253 30.130
	R.	0.15	—	0.08	—	—	0.07	0.03	—
10	B.	29.659 29.252	30.265 30.165	30.289 30.247	30.104 30.044	30.310 30.256	29.904 29.651	29.835 29.778	30.273 30.155
	R.	0.07	—	—	—	—	0.08	0.01	0.01
11	B.	29.913 29.879	30.017 29.851	30.326 30.257	29.962 29.952	30.027 29.879	29.641 29.591	29.872 29.730	30.160 30.038
	R.	0.09	0.32	—	—	—	—	—	—
12	B.	29.660 29.515	29.942 29.802	30.431 30.413	29.924 29.750	30.428 30.256	29.741 29.584	30.018 29.937	30.164 30.097
	R.	0.17	0.01	0.01	—	—	—	—	—

Insects.—During the present and others of the winter months, succulent plants, such as Sedums, &c., become sickly, and die apparently without a cause. They are thus destroyed by a small, footless grub feeding upon them just below the surface of the earth. This grub is about half an inch long, colour dirty white, fleshy, slightly curved, bristly, and without legs, but furnished at the sides with tubercles, which aid it in moving. At the latter part of May, these grubs enter the chrysalis state, becoming white, and having the appearance of the body of a beetle stripped of its wings, and in a mummy state. From this state the perfect insect comes forth, at the end of June, in the form of a small beetle, as pictured in the accompanying drawing, but not longer than the curved line by its side. It is black, slightly glossy, numerously granulated, so as to resemble shagreen, and a few pale-grey hairs scattered over it. The best mode of saving succulents from this pest is to have it very assiduously sought for among them during the month of June. If the beetles are allowed to deposit their eggs, the mischief is done. This beetle is the *Otiorhynchus sulcatus* of some writers, and the *Curculio sulcatus* of others.



We answered a question two weeks since which involves an important principle in gardening, and deserves a more prominent notice than our space for answers to correspondents is calculated to afford. It is in reference to the best time for sowing the seeds of the Ixia tribe, including the Gladioli and others. (See page 92). Our readers have already been informed, in our first volume, that the ixias, and indeed the greater portion of the irids generally, are bulbous plants, natives of the Cape of Good Hope, and that they renew their bulbs annually—the old ones dying as soon as they have flowered and produced seeds. It will also be recollected, that those bulbs in their native country endure the scorching rays of an almost vertical sun during many months, being luxuriant on the return of the periodical rains, at which season they spring up as if by magic. Now, although these and similar plants, under the same influences in different parts of the world, shed their seeds as soon as they are ripe after the rains have ceased, those seeds necessarily remain dormant, like their parent bulbs, until the return of the periodical rains, which give life and vigour to the languishing bulbs, and the power of vegetating to the seeds. Hence our advice to sow these seeds about the time at which the bulbs begin to grow with us, or, in other words, about the end of September. We believe that gardeners have ascertained in practice that if such seeds are sown any time during the summer as soon as they are ripe, they will not vegetate till their natural time in September and October; and we all know that if the sowing is deferred until the next spring the seedlings are overtaken too soon by our summer droughts, and are thus prevented attaining a proper strength before the end of their first growing season.

We may notice, also, another peculiarity in the economy of these Cape irids to show how Infinite Wisdom has provided for the preservation of their race. During the dry seasons the earth in those regions where the ixias abound cracks in all directions, owing to the excessive heat baking the surface. On the return of the rains, the whole surface is deluged before the soil is so far moistened as to allow the water to pass through it; seeds are thus swept along rapidly, mingled with sand and dust—forming one muddy stream—into those cracks and fissures. There they are deeply imbedded; but from thence they soon vegetate and reach the surface. We are not aware that the greatest depth from which they can issue has been ascertained, but it is well known to gardeners that very small roots of this tribe will vegetate after being accidentally buried, to the depth of two or more feet, during the operation of trenching beds or borders in which they have been growing; and we ourselves have seen the crocus thus buried, and come up in safety. We entertain scarcely a doubt but seeds of these bulbs would vegetate from a considerable depth. We are not to suppose, however, that seedlings or old bulbs thus accidentally buried beyond the depth that is more natural to them could long endure the confinement with impunity; and here a natural contrivance is powerfully exerted every growing season to bring them up to the surface. We have already said that they renew their bulbs annually, and, in doing so, the new bulbs are formed on the top of the old ones, and by this means, in the course of time, the successors of the buried bulbs rise step by step to the surface.

THE FRUIT-GARDEN.

THE VINE OUT-DOORS.—We have received so many inquiries about out-door grapes, that it is evident a great number of our correspondents are much interested in vine culture; and we therefore feel constrained to offer some more advice on that head; and as we have, when treating the subject before, generally given *miscellaneous* advice, we will now take the question in its proper order, and begin with the root management, or, in other words,

BORDER MAKING.—By this term, we merely mean making the necessary preparation for the root, whether it be a single vine or a score, for such preparation is always termed "making a border." The main basis on which to proceed is, as we have before said, "the acclimatising principle." Inexperienced persons will naturally ask, "What is acclimatising?" To this we must answer — Enabling a tree from warmer and brighter climes to withstand the vicissitudes of our northern climate; and not only to grow, but to produce its flowers and fruit in perfection.

Now, it must be obvious that we cannot increase the amount of light which falls to our lot; heat we may do something with, by making use of materials (whether as connected with the branches or the roots) which will absorb and retain a portion of the sun's heat for a lengthened period. It is a well-known fact, that this ground warmth, as received from the sun's rays, decreases in amount as we descend from the surface; deep borders, then, is only another phrase for cold roots; and cold roots can by no means be supposed to be favourable to that rapid development of parts to which such tender trees as the vine are subjected in their native clime. Thus much, then, seems to show that deep soils are not favourable to the perfecting of fruit-trees from warmer climates than our own.

Having settled, as we think, the matter of depth, we must next advert to texture in soil—"mechanical texture." This was a point too much overlooked in former days, and our improved notions concerning it have arisen, in no small degree, from the practice of the potting bench; for no class of men are more alive to the immense importance of studying the texture of soils than our very best gardeners, who have in their day spent much time in the culture of tender plants, and who are compelled to add whatever amount of science can be rendered available to the soundest of practice and the most lengthened observation. By mechanical texture is meant that constitution of soil which more or less permits percolation, or the free passage of water, and, as a consequence, a corresponding entrance of the atmospheric air; on which latter point almost everything depends, not only in vine culture, but with most plants, aquatics excepted, which are specially constituted to endure very different conditions.

We may here stay to observe, for the benefit of those who have not been used to dabbling in fine phrases, that for the vine out of doors a very porous character of soil should be established. The heavy, and sometimes rather too continuous, character of our rainy periods are apt to overpower the tender spongioles, or mouths of the fibrous roots; and, we need hardly say, that such a consequence is fraught with mischief of some kind to the swelling or ripening grapes. Hence, we hear of grapes "shrivelling," "shanking," going blind," and of many more technichal phrases, which, although not entirely traceable to this root fault, yet, in the main, originate in imperfect root action.

THOROUGH DRAINAGE. — The foregoing remarks relate chiefly to the conducting properties of the soil; we come now to consider how superfluous water, after passing through the soil, may be carried away with speed, certainty, and by means of a permanent character. Very few soils in Britain are so constituted but that the vine would be benefitted by some amount of drainage. This may seem an extreme assertion, but we do not mean that the vine will grow and produce fruit in few soils, but that the drainage here alluded to, in combination with a proper texture of soil, will facilitate the ripening process; which, accelerated even two or three weeks only, will prove a matter of immense importance.

IMPROVEMENT OF STAPLE.—Plenty of loam and manure were, at one period, considered by gardeners as indispensable in vine culture; but the late Mr. Clement Hoare was one of the first to break these trammels, and to show that the vine might be cultivated in almost any ordinary material, or a combination of them, provided it was thoroughly penetratable by the atmosphere. Thus we find him successful with such materials as charcoal, old plaster, lime rubbish, broken bricks, &c., with scarcely any soil: and from this circumstance there can be little doubt that the vine has a capacity to draw a great portion of its nourishment from the atmosphere, provided such can have a constant and free entrance into the soil. We are not of those, however, who would advise the adoption of such maxims in full. Ingenious persons are apt to " ride their hobby too hard;" and we consider Mr. Hoare's practice very interesting, as being highly illustrative, and as opening a wider field for vine culture, inasmuch as a portion of the materials used by him will, with proper management, combine with almost any soil that may happen to be on the spot; for the amateur, or cottager, cannot command turfy materials at all times.

Every one must be aware of the tendency in the vine to throw out stem roots in the damp atmosphere of our hothouses; also of the fact that vines have frequently been known to grow out of brick walls. We once knew a case in which the border being excessively rich, deep, and, of course, stagnant, the vine had attached itself firmly to the wall, and ramified along its surface like some orchidaceous plant to its block of wood, having few or no roots in the border, from which it seemed to turn with a decided disrelish. Again; we once knew a Black Hamburgh vine planted in the bark of the tan-pit where pines had been removed; the pit was all tan, or nearly so, and this Hamburgh proved a splendid tree, bearing profusely first-rate grapes. This was about thirty-five years since, and occurred in a small house at Melrose Hall, then the seat of Daniel Rucker, Esq., at West Hill, Wandsworth, but now, or lately, belonging to his grace the Duke of Sutherland.

Here, then, we have extreme cases; the one vine growing altogether in stones, charcoal, &c., where decomposing animal and vegetable manures would, at first sight, appear to be totally absent; the other, a vine growing entirely in old tan, which was little else. It must be remembered, however, that the same results would not have followed if the tan had been out-doors; it would, in that case, very soon have become so sodden and soured that the air could with difficulty enter, and then good-by to farther success. The heat of the atmosphere in-doors, together with cautious watering, kept the tan always mellow.

MANURES.—These we may at once class under two distinct heads, the animal and the mere vegetable manures. We have before said that the vine may be cultivated without them; let us not, however, be understood as recommending their total disuse. In all cases a certain portion is useful if judiciously applied, and, in many cases, they become particularly necessary. Such a case is when vines become exhausted through over-bearing, or through age; also, when the vine is growing in a very limited space, covering houses in the vicinity of our towns; in which latter case liquid manures, at certain periods, are of much service. The use of manure mixed with the soil of the border depends on the amount of vegetable or other organic matter which the soil contains. Thus a free, sandy, loamy turf, from an old pasture, is complete in itself for vine culture, provided the subsoil of the border is sound. What we would here direct especial attention to in the use of manures is, their application as top-dressing, in combination with a shallow soil; which, as before observed, we regard as forming the foundation principle in the perfecting or ripening of the wood of fruits from hot climates; a principle of so much importance that success can never be attained unless it be carried out.

Ripening the wood, then, signifies that the plant should attain its full maturity (in regard of the leaf) which nature has ordained; that is to say, that the leaf shall have been fully developed, have gone through its due course of elaborations, and have taken its autumnal hue, by the influence of solar heat and light. The sure consequence of this is, that the buds will be plump and firm, and will develop in the ensuing spring with a freshness and freedom unknown to ill-ripened buds. The blossoms will, moreover, set for fruit with more certainty, and the fruit itself swell in a much more perfect manner. Another point is, that the wood of tender fruits, such as the fig, the peach, the vine, &c., will be in a much better position to endure a severe winter.

We have now taken a survey of the general first principles on which successful vine culture may be said to rest, and we propose shortly to enter into a detail of the proceedings necessary in vine-planting and culture. We have written thus much to pave the way to a broad consideration of the question in all its bearings. R. ERRINGTON.

THE FLOWER-GARDEN.

MY notes on late flowering plants in the flower-garden ended with those on a beautiful geranium called *Lady Mary Fox*. The next one I shall mention is *Diadematum*, which, with another one called *Diadematum rubescens*, are fully as good and showy in beds as *Unique* and *Lady Mary Fox*. These two are very old, and were the first of this class with which I began to make flower-beds in 1842, so that I am comparatively a beginner in this branch of flower-gardening; others, whom I could name, having, for more than twenty years, paid more or less attention to them. These *Diadematums* are dwarf plants, but literally covered with their gay reddish-pink blossoms all the season, and after they are taken up and potted at the end of the season they flower on for a long time, Indeed, of all the hybrid-perpetual geraniums, these are the last to cease blooming. For this merit, and perhaps a little prejudice in their favour as old acquaintances, they are my own peculiar pets; they are all but barren, yet I make a fresh trial to cross them every season; and once, about three years since, I succeeded in obtaining one seed between *Diadematum rubescens* and *Priory Queen*, one of the best late flowering pelargoniums for the open borders we yet possess. The pollen of the Priory Queen, one would think, ought to throw strength and stature into an offspring of the

Diadematum breed, but the result is far different. The cross is a very beautiful thing, not quite intermediate between the two parents, yet retaining so much of the likeness of each as to leave no doubt of its origin. I mention this cross in order to stimulate a younger race of cross-breeders, for I can hardly believe that any plant having one or both organs of reproduction in a perfect state can be altogether barren. Dr. Herbert had a *crinum* which he could not seed until it reached the age of 14 years, but very probably age had little to do with the circumstance. It must rather have been owing to something peculiar in the cultivation during the previous season, or that the pollen was applied just at the moment when the flower was ready, for I have often obtained difficult crosses by varying the cultivation at such periods; but I have not been able to get such an insight into the mystery of the operation as to enable me to lay down a rule applicable to other individuals. Now, some of the most beautiful plants in the order of geraniums are, to all appearance, quite barren, or, rather, refuse to yield seeds by all ordinary experiments; and yet, I believe, they are capable of producing seeds under certain circumstances, if we did but know them. Although it pays or satisfies many of us to fight away in improving the shape and substance of the pelargoniums, our endeavours are but as mere child's play to what will be done some day in this large family, when the real purple, the scarlet, and lilac, and pure white, to say nothing of their compound shades, are improved each in its own strain to the present standard of the existing race. At any rate the flower-gardener has a rich mine to work out in these hybrid-perpetual flowers, and many of them have already received beautiful tints from the crimson and lilac shades of the two new French varieties called *Anais* and *Ibrahim Pacha*, which are the next two on my list of bedders. Of these I had a fine mixed bed this season, which was much admired, and they were in fair bloom till the rain at the beginning of October spoiled them; but having seen them so beautifully brought out at the London exhibitions, I must say that I did not admire them in a bed so much as others. Their leaves looked stiff and dry, and altogether as if they were not at home; yet their flowers were as numerous and rich as one could wish, but the rich tints which their pollen has imparted to the older varieties will soon be a distinct feature in our flower-beds. *Sidonia* has been finer with me this season in a bed than I ever had it before. The plants were four years old, and they were cut down close last January, and allowed to grow very slowly in the spring; but I have been so often disappointed in it that I would not recommend it as a bedder generally. Probably I have not been yet able to make the proper compost for it; others speak of it as a splendid bedder. I have never seen but two other varieties of its class—the *Diadematum bicolor*, a shy gipsy, and *Spleenii*, altogether the other way. These three are striped in shades, something after the manner, but not the colour, of the old *Cactus speciosissimus;* and if any one could drive a cross between *Sidonia* and *Spleenii*, and the seedlings took after the parents, he would have a shaded bed with one kind of plant. *Spleenii* is a very free grower—too much so for some rich heavy soils; it should be planted in very light soil. It is no easy matter to make suitable beds for the different sorts even after one learns their habits, and it is so with many plants in the flower-garden; but, as a general rule, take the following until you meet with a better—that is, for geranium beds. Where these "run into leaf" and flower but sparingly in the autumn—a very general complaint—the bottom soil is both too rich and too damp, and may be too deep also, but the remedy is at hand. Flower-beds on rich or damp bottoms should be made shallow, not more than ten inches or a foot deep of soil, well drained by putting a thick layer of coal-ashes in the bottom, and some three inches of the ashes all round the sides, as the bed is being filled, to within an inch of the surface. Thus I saw beds made in a piece of rich kitchen-garden ground in front of a gardener's cottage, where none of the plants rambled in the autumn for many years. In such beds the bottom soil should also be of the poorest description, and three or four inches of light rich compost on the top for the purpose of encouraging the plants to make a vigorous start at first, and to keep their roots for awhile near the surface. When the roots do find their way down amongst the poor soil, they cannot supply more food than will keep the plants in a medium condition, which is just that state in which all the strong geraniums flower best. It is customary in large flower-gardens to arrange the composition of the different beds every winter, so that each plant is furnished with that kind of soil, or compost, which experience has shown to be most suitable for it in that locality. Without attention to this point no one can succeed; it is, in fact, the real key to success. There is a collection of 28 little beds in one part of the flower-gardens here devoted to the hybrid-perpetual geraniums, and in them four different composts are arranged annually to suit the natures of the different kinds. This involves the necessity of knowing before-hand what kind is to be planted in each bed; but all that is settled in the previous season, when the whole arrangement of the garden is fixed. To name the different composts we make up for such and such plants could hardly be of general use, so much depends on the nature of the subsoil, and even on the different soils from which compost can be made, and on the locality where they are used. All that I shall say on the subject of composts, therefore, will only be in general terms, and that will suffice when I come to treat of flower-beds exclusively.

Rouge et Noir is the name of another most useful geranium of this class, a free grower, easy to strike from cuttings, and the easiest of them all to keep over the winter. The friend from whom I received it six years since told me he had known a large plant of it trained against the back wall of a span-roofed greenhouse, where it had abundance of perpendicular light, which had been in bloom more or less for three years and six months; and I fully believe it. I once had it in bloom for eighteen months by thinning out the flowering branches in September, and giving it a good shift about the same time, and a winter temperature of 45°. The name, *rouge et noir*, means red and black, which are the colours of the flower. It is an old-fashioned-looking one, and has driven out three other sorts which are much of the same character—*Touchstone*, *Isedorianum*, and *Pavoninum*, or *Pavonium*, as it is sometimes called. It is never worth while to keep, especially not to bed out, two or three kinds of the same plant that are so much alike as to require long names to distinguish them. In such cases we make use of the one which suits our soil and situation. Where *Rouge et Noir* grows too strong, *Pavoninum* is the next best substitute. I am not sure that *Rouge et noir* is in the London trade; I never saw it in any of the London nurseries; but I once saw a lot of young plants under that name there, and I bought one of them on speculation, knowing it not to be true to name. It proved a fudge. *Quercifolium* is a fine dwarf red one for a small bed; blooms most profusely through the whole season, and is very easy to keep and to increase. This is a Norfolk seedling, and is nearly 20 years old. The person who raised it from seeds sold it to a London florist, through Mr. Bell, of Norwich; but the London dealer went off to America, and forgot to pay for this *Quercifolium;* but Mr. Bell, much to his credit, discharged the debt in full, owing to the poor raiser, although he had no claim on him for the amount; and, at the risk of offending Mr. Bell, I mention this, as such acts of disinterested kindness should never be put under a bushel.

Quercifolium coccineum is an elegant variety for a bed, with small scarlet flowers and fine leaves. It is tender to keep in a rough way, and not easy to get a stock of it in summer. This will always keep its place as a gem, and it is only three or four years since a beautiful specimen of it was exhibited at one of the Horticultural Society's shows at Chiswick, but under a wrong name. It was then called *Quercifolium superbum.* Another one, called *The Curate*, is a pretty little thing, very dwarf, and not at all difficult to keep or increase. Many people admire it as an edging, but the best way of all to use it is in children's gardens. It is just such a thing as little girls would like to water and attend to? D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

SALVIA SPLENDENS.—This, among the family of the *Sages*, is well worthy of the title of *splendid.* Rivals in the same family groupe it may have in summer and autumn, but in the earlier winter months it is unmatched. Contrasted at this season even with the loveliest and the gayest of other flowers, it constitutes one of the most dazzling ornaments of the greenhouse or conservatory. Even where there is nothing else very striking beside it, its own elegant foliage sets off to advantage its rich racemes of scarlet flowers. This interest is prolonged from the calyx being of the same colour as the corolla, as it is first expanded, and remains for some time after the corolla has dropped.

There is something peculiar and worth looking at in the structure of the stamens of the Salvia. They generally spring from near the centre of the tubular corolla before it becomes lipped. When about half their length, they form a sort of stud, upon which the remaining portion may be moved upwards and downwards like a swivel on a joint; the upper portion from this articulation is crowned with the pollen-bearing anthers, and the lower portion terminates in a point in the tube of the corolla. What purpose those parts of the stamens answer, that thus point downwards, it is not for us to say. Did we allow ourselves to fancy that those stud-like parts of the stamens were double, and that the part which proceeded downwards from them was terminated by an anther, then we should have the Salvia, like most other *Labiate* flowers, possessing four stamens, two longer and two shorter. Everything we investigate is fitted to take away our pride, and teach us humility. Flowers are powerful monitors, did we only listen to their teachings; but we must not linger here. The stamens in *splendens* are separate; in many of the other species they are united for a part of their length. The pistil is also different in the different species, though long and slender in all. In the beautiful blue *Salvia patens*, its single stigma bends over the anthers of the stamens; in *splendens* it is long, but terminated with a bifid, or two-horned stigma; while the beautiful red *Salvia fulgens*, that raises its pistil considerably above the anthers, is not only furnished with a bifid, or two-horned stigma, but also near the end of its style with abundance of shaggy matter, which we have little doubt acts as a bottle-brush for scattering the fertilising pollen from the anthers; all evidencing wisdom and forethought, as to the means for ensuring the perpetuity of the race.

Salvia splendens, as well as most of our greenhouse and bedding-out species, is a native of Mexico. The term Salvia is derived from *Salvus* (safe), in allusion to the beneficial character of many of the species in a medicinal and culinary point of view. Even now, many who are not yet decided epicures may be looking forward to the festive period, and thinking of partaking, along with friends, of those good things in the preparation of which even the common sage is brought into abundant requisition. At the present time, the plants, if safely lodged in the greenhouse and conservatory, should not be exposed to keen draughts of air, if it is wished to preserve the bloom as long as possible. In watering, let the liquid be a little warmer than the air of the house; and if coloured with guano, superphosphate of lime, &c., they will like it all the better. If it is not convenient to have manure water, much the same object will be gained by top-dressing with old dried cow or sheep-dung. Watering over it will enrich the compost, and, acting also as a mulching, less watering will be necessary, which is something, as if the pots are crammed with roots, and the weather should be fine, they will drink like any topers. They will bloom well either in small or large pots; though, for striking effect, large plants in large pots are the most desirable. "All very well!" says some dozen of our friends at once; "I should like to have half a dozen of those fine large plants in my greenhouse *now;* they would look so nice, among chrysanthemums, and opening camellias, &c.; and I should like a few small plants to enliven my window; but then I have always been deterred from growing them from the great space they would occupy when done flowering, or before they had commenced to bloom; and then numbers of clever people have dunned into my ears to beware of them as I would shun the plague, as a few plants would soon fill a whole house with *red spiders*, and then farewell to all my other favourites, so far as their healthy looks are concerned." Now, even in these days of cheap glass, we are well aware that from various causes the husbanding of space under glass is as much demanded as ever. But, even in this respect, our friends, the Salvias, are wonderfully accommodating. They are but little subject to the spider, when sturdily, not daintily, reared. In any circumstances they are less troubled with it *now* than during the dog-days. A slight syringe over the leaves when in bloom,—and in cold weather, when a little heat is necessary, the brushing over the pipes, or flue, when not very hot, with flowers of sulphur and water,—will be *next* to effectual in keeping the intruder away. So much for present management. Now, as to preparing for another year: as soon as the plants have done flowering, give away, or transfer them all, save *one*, to the rubbish heap; place the one saved in any out-of-the-way corner, where a stray ray of light may reach it, and where frost cannot visit it—under the stage will answer well enough. There the leaves will soon drop, but never mind; though, if a few small ones remained on the points of the shoots, just to keep the sap in motion, it would be as well; yet, if you manage to keep the stems alive, it is a matter of no great consequence, as from them plenty of young shoots will break in March or April; and if there are few or no leaves on them during the remainder of the winter, you will not be troubled with nightmare about the red spider, as the stems will be too tough food for them. In the end of March, or the beginning of April, take off rather more short stubby shoots than you will want for plants, as some may fail; cut them across below a joint, insert them in cutting-pots half filled with drainage, the other half with light sandy soil, with the exception of half an inch at the top, which is to consist of sand alone. If you have nothing but your window, or a greenhouse, the cuttings should be placed under a bell-glass; or, if inserted in a small pot, and that again placed at the bottom of a larger one, and a square of glass placed over its mouth, it will answer admirably. This is to prevent the juices of the cutting being evaporated; and, farther to effect this, shading must be resorted to in bright weather. The number and size of the leaves to be retained must depend upon the means you possess of preventing the transpiration of the juices of the cuttings. Some day we may devote a chapter to propagating from cuttings. They may thus be struck in a window or greenhouse; but if you have such a thing as a cucumber-box at work, why that is the very place for them; and if there you can give them a shady warm corner, and the bell-glass, or the square of glass in addition, you will be surprised to find how soon your cuttings will be changed into rooted plants.

If you have nothing but the greenhouse and a rude cold pit, shift the plants, first into three-inch pots, and then successively into six and twelve-inch pots, setting them as soon as possible in the pit, as there you may keep them close for a time, to encourage rooting after each shifting. But if you can command a little bottom heat, such as the side of a cucumber box, shift at once into six-inch pots, and then again into twelves. In either case, set them out of doors by the middle or end of June, either upon coal-ashes, or plunging the pot in a border, with a tile at the bottom of the pots, to prevent worms entering, and to prevent the roots going out; shade in sunshine, when first turned out; stop every shoot, to make the plants stubby and bushy, until the middle of July; water with weak manure liquid and clear water alternately; frequently, after a rainy day, syringe the whole of the foliage well with a weak, clear solution of soot and water; provide them with a temporary shelter, by means of mats or waterproofed calico, by the middle of September, to guard against heavy rains, storms, and frosts, and set them in the house by the end of October, or rather, if convenient, by the middle of the month, and the blaze of scarlet in November will well repay all your efforts. Many, with a keen relish for floral loveliness, cannot afford to get costly plants, and this is just one of the things for them, as the cost will almost entirely consist in their time and labour. For getting nice little plants for the window, it will be time enough to strike the cuttings in June. Three things in growing these must be attended to. Syringe the foliage frequently, water liberally, and prevent frost ever touching the foliage. Equal portions of loam and peat will suit them well; a little dung added to the last shifting will be advantageous.

The beautiful blue *S. patens* makes a fine pot plant in summer and autumn. The red *(fulgens)*, which is now (November 20) as splendid out of doors as it has been all the season, makes a fine show in a pot when treated in every respect as the *splendens*; only, when done flowering, the stems may be cut down, or the pot placed in a shed, as it is much hardier than the splendens. But one of the finest of the tribe, for the conservatory, is the scarlet *Salvia gesneræflora*, which generally comes into bloom in February. Large plants may be grown the same as we have recommended for splendens. It possesses the advantage of flowering later, but the disadvantage of requiring more time, and, therefore, more space in the conservatory during the winter.

R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

Blocks.—Having in preceding numbers described fully two methods of growing orchids—first in pots, and secondly in baskets—it only remains, to complete what we proposed to observe under this head, to describe the mode in which they are cultivated on blocks, or logs of wood, always excepting the terrestrial species (those that grow in the earth); on which, however, we hope to write shortly.

The shape and size of the block may be left safely to the fancy of the amateur. The grand point to attend to is in having a kind of wood that does not readily decay. We have already mentioned the wood of the acacia, commonly so called; the proper name being *Robinia pseudo-acacia*. This is to be preferred on account of its lasting qualities. Oak and ash are the next best. We have used also the wood of the elder, which answers very well. All resinous woods ought to be avoided. Mr. Lyons, in his work on Orchidaceæ, recommends a block which he has named the "Oniscaymintic"—*oniscus*, a wood-louse; *mynticus*, to prevent. This is, to amateurs, a very useful kind of block, especially for the small growing, and more curious than beautiful, species. It may be briefly described as the branch of a tree, about 30 inches high, with short branches left on it about six or eight inches long. This branch is to be fitted tightly into a stand, with a thick bottom to steady it, made of pottery ware; the centre being raised to receive the branch. The stand is made like the feeder, or saucer, of a garden-pot: the centre being raised, leaves a hollow all round it. This hollow is to hold water, which prevents wood-lice reaching the plants on the branch. From this preventive action, or power, Mr. Lyons gave to the whole the name "Onyscaymyntic stand," which may be Englished, the "wood-lice excluding stand." Any grower of orchids, that has a considerable number of the smaller growing species, would find this stand a ready receptacle for them, and much more commodious than a large number of small blocks hung up to the roof. For larger growing kinds, there are two ways of hanging up the logs: one is to nail a piece of copper wire to one end; then form a loop, and that will conveniently enough receive a hook, or nail, to suspend the block. The plant may be fastened to the log with tin tacks and metallic wire, in the manner we have already described. The other method is, to fasten the piece of copper wire at each end to the log. The wire should be long enough not to touch the plant when it is hung up. This latter method is the best for old established plants, and the former method for plants newly imported, or for such as are very impatient of moisture—the perpendicular position of the log, when hung up, allowing the water to flow off directly, and so drying up the superabundant moisture quickly, before it injures the delicate young roots. There is no necessity for having the blocks entire, that is, round, as they have grown: they may be split; the smaller ones exactly in halves, and the larger ones into three parts. In the latter case, the centre piece will, of course, be flat on both sides. This part is excellent for such plants as form broad masses of pseudo-bulbs—such as *Lælia autumnalis* and *L. acuminata.* This centre part is also suitable for young pieces of *Aerides*, *Vandas*, and suchlike species. The young roots delight to cling to it; but for such young plants the logs should hang perpendicularly. The best kind of log for those truly beautiful plants, *Phalænopsis amabilis* and *P. grandiflorus*, is a thick branch of the cork-tree, with the bark on. This bark being very thick and rough, holds the water about the roots of old established plants much longer than a smooth barked, or log without bark, would do. As we do not recommend any moss to be placed on the logs for these plants, this cork block is the best for them. Now, the bark of the cork-tree does not part from the wood so easily, or so soon, as any other kind of tree, and so there is not that objection (the harbouring of insects) to it that there is to the rest. Where large branches of the cork-tree can be easily procured, they are excellent for growing the beautiful *Renanthera coccinea* upon. We have seen it thriving wonderfully upon them, and flowering annually quite freely, provided the management in other respects is rightly attended to.

This fine plant was first flowered by Mr. Fairburn, when gardener at Claremont, several years ago. It is a native of China, and highly esteemed by that garden-loving people. Whenever they find a plant showing a flower-bud they cut off the branch and hang it up in their rooms to bloom. In this country the way to cause it to flower is to grow it freely with heat and abundance of moisture, keeping it close to the glass to induce strong short-jointed wood. In the month of October remove it into a drier, cooler house, the maximum heat of which should never exceed 60°, the minimum may be, during the night, 45°. In this house it should remain till the flower-buds appear. These may be distinguished from young root-buds by having sheaths to them, whereas a root-bud is quite smooth. As soon as it is quite evident that flowers are appearing, remove the plant back again into the moist East-Indian house. If this is not done the flower-buds are apt to turn yellow and perish; but if put into the warmer, moist house, the stimulus they there receive will bring the flower on to perfection. As this is a fast-growing plant, it will, in two or three years, push beyond the block or branch considerably. When that is the case the part beyond the block may be cut off, and placed against the branch so low as to give room for it to grow again for two years before it reaches the same height. There are, then, three points to attend to to cause this plant to bloom; 1st, to grow it close to the glass; 2ndly, to give it, whilst growing, abundance of heat and moisture; and, 3rdly, to give it a complete rest. The same treatment is proper and necessary for *Vanda teres*, a plant even more beautiful than the Renanthera.

When an orchid on a block has become too large for it, and the roots are perfectly healthy and growing vigorously, it is sometimes difficult, nay impossible, to remove it from the log without injuring, and often destroying, the best roots. In such a case we procure two, or, perhaps, three other logs, and with a carpenter's gouge hollow them out and fit them to the old log, with the plant on it, joining them gently, so as not to crush the roots, and fastening them to it with some strong copper wine. The fresh roots will soon take possession of the fresh pieces of wood, and the plant will thrive with renewed vigour. This method is to be particularly recommended for rare expensive plants. We have often felt rather nervous when we had to renew the pot, basket, or log, of a plant, the cost of which has been high, perhaps five or ten guineas. If the roots were healthy and closely adhering to the log, we preferred adding fresh pieces of wood to the old log, rather than injure the roots by taking them forcibly off, though done as carefully as possible. The plants we have treated in this manner are such as *Cattleya superba*, *Phalænopsis amabilis*, *Sophronitis grandiflora*, and *Oncidium tricolorum.*

Routine Work for December.—During this month the heat of both orchid houses must be very moderate: East Indian house, by day 60°, by night 55°; Mexican house, by day 55°, by night 50°. Give *air* on sunny days, especially to the cooler house; *syringe* the logs twice a week in the morning, and *wet* the floor, walks, and pipes of the Indian house night and morning. Prepare for *potting* by having some turfy peat placed in a warm shed to dry. Watch for *young growths*, and, as they appear, pot the plants that are producing them. Now is a good time to *renew logs* that are becoming rotten. The roots of most kinds are now at rest on the blocks, and may be got off pretty easily. Remember to do the expensive plants, if the roots are very fast to the blocks, in the manner we have just described. Keep the plants *generally dry*, the only exception being such as *will* grow. These must be very moderately watered without wetting the leaves or young shoots. Be making *new baskets* at convenient seasons, placing them in a dry shed. They will be ready in the spring, when your plants want renewing.

Drainage.—The material for this important point in orchid culture during this month may be prepared. As orchids require twice as much as any other plants, except succulents, do not be afraid you will have too much. Break your potsherds into three sizes, and keep them separate, sifting the smallest size through a very fine sieve, merely to take out the dust.

FLORIST'S FLOWERS.

General Directions.—Under this head we purpose giving such remarks as apply to routine management. All the florist's favourites that require protection will now be in frames or pits; such as auriculas, polyanthuses, carnations, picotees, choice pansies, petunias, and verbenas. All the attention these want now is plenty of air on fine days, moderate waterings to be given in the morning in mild weather, protection from heavy rains and from severe frost, also unceasing warfare with slugs and red spider. This last attacks the carnations more severely than any other at this season, causing the leaves to look spotted and sickly. To clean the plants, tie a small piece of sponge to the end of a small stick about six inches long; with this dipped in tepid water wash every leaf: there is no application like this for clearing plants of any description from this pest. Cleanliness is conducive to health, is a maxim that applies to plants as well as animals; and the more frequently the leaves of a plant are cleansed from dust and dirt, the more healthy they will be. A gentleman of strict veracity once assured us that he had kept some laurel bushes perfectly healthy by the simple operation of sponging the leaves three times a week, though his plants were situated in the very middle of smoky London. This may sound like a thing doubtful to some of our readers, but it is, we think, not at all unlikely, though we must confess it is not at all probable that many persons will be at the trouble to copy his example. The anecdote is mentioned to show the good effects of cleanliness upon plants. By frequently washing the leaves the pores are cleared from obstruction, and the plants breathe freely and healthily, for the leaves are the lungs of plants.

T. APPLEBY.

THE KITCHEN-GARDEN.

GLOBE ARTICHOKES.—If the winter protection of this vegetable has not already been attended to, no time should be lost in mulching the plants separately, with dry leaves, mulch, decayed rubbishy hay, straw, fern, heath, or any other dry and readily-procurable material, and placing a light coating of earth over it, taking care at the same time to finish it up in a conical shape, so that the water may run off, instead of into, the plants and the material that protects them; for if the latter is applied dry, and placed in a position to enable it to remain free from moisture, a very small quantity is of much greater benefit for protecting purposes than large quantities of damp materials badly placed, and which, indeed, prove sometimes very injurious. A dry day, too, should always be chosen for the operation.

CAULIFLOWERS.—All plants under protection of any kind must be well attended to now. If fine heads of flowers at an early season are desired, those pricked into small pots, and intended for placing out in February next, should now have a shift into larger pots, as care must be taken not to suffer them to become pot-bound. The plants in frames, or under temporary protection, should be kept clear from decaying leaves, be well surface-stirred, and constantly aired; no covering should be over them by day, except in very severe weather; and at night the lights should be tilted both back and front, to keep up a regular circulation of air, except in frosty weather. A little dry dust shaken occasionally amongst them will keep them in a healthy condition.

ENDIVE should either be taken in to blanch, or should be protected and blanched where it grows. Choose a fine day for covering a portion with thin boards, dry straw or fern.

SMALL STORE LETTUCE PLANTS must be carefully attended to at this season, or many of them may be lost by canker or mildew; to save them from which, they must be kept pretty dry, and at all times well aired, sifting frequently a little dry dust carefully amongst them; but should mildew, in spite of all precautions, make its appearance, lose no time in dredging them slightly with flowers of sulphur, and repeating the dose if necessary. A piece of thin canvass, with a handful of sulphur placed in it, is a capital mode of applying it, enabling one to dust a large space lightly and thoroughly without smothering the plants with too much at a time. Little and often will be found the best mode of application: dry fresh-made wood-ashes will also stop the mildew, as well as dry fresh-made charred dust applied as we have directed.

PARSLEY AND SPINACH.—If inclined to canker at this season, parsley should be dredged with chimney soot, charred dust, &c. Spinach is also now very liable to this disease if growing on a cold wet soil, but the timely application of charred dust will prevent its ravages and keep the crop in a healthy state.

PEAS AND MICE.—Those who may not possess the convenience of frames or houses for the purpose of forwarding this vegetable for transplantation, may now sow on warm dry banks or borders in full crop, taking care at the same time to set plenty of mouse-traps, baited with peas softened and started into growth; for mice do not attempt to dig up and destroy the newly-sown peas, beans, &c., until they are softened, and growth has commenced. Peas always suffer to the greatest extent from mice when their sprouts are from about a quarter of an inch to one inch long. Our plan for catching these little animals is both simple and inexpensive. We throw a few peas into a little water or moist earth, and allow them to swell and make a shoot of about a quarter of an inch in length. A long thread is put through a needle, and as many peas strung upon it as will allow two to every 10 or 12 inches of thread, which are the lengths into which it is to be cut, with two peas on each length. A knot is tied at each end of these lengths; some stout currant shoots, old raspberry canes, or any other straight sticks of the same size, are cut into pieces, each about one foot long. A slit is made at one end of each stick, and an end of one of the lengths of thread is drawn into each slit. The two strung peas are placed in the middle, at about half an inch apart, thus allowing room for the mouse to thrust its nose in between the brick placed on the thread, and gnaw the thread asunder, which it is sure to do, instead of touching the peas. If the sticks, thread, and brick, are placed at the right height and angle, the brick then immediately falls and crushes the mouse; to aid which, the brick should be set upon a slate, tile, or piece of board. The thread may again be tied, and the trap reset. We find no difficulty in keeping clear of mice by this simple plan. A boy attends to the whole, and quickly prepares several dozen of these traps, going round first with the stakes and baited threads, and then with a wheelbarrow of bricks and tiles. Next morning he looks over the whole, removing the dead mice, and resetting the traps. At this season, when the hedge and forest fruits are nearly over, and rough weather is set in, mice are most numerous in the garden.

RHUBARB.—Clear away all the weeds from the rhubarb quarters or beds, and then, with the digging-fork, stir the earth carefully round about the plants, without injury to either crown or root. This being done, give the beds a good top-dressing with strong manure, the fertile parts of which will soak down to the roots during the winter months.

CELERY, late planted, should be well earthed up before any severe weather sets in. A dry day should be chosen for such work. If the spaces between the rows should be weedy, let them be hoed lightly, the weeds raked off, the earth forked up and broken to pieces well, and, as soon as the rows of plants are thoroughly dry, draw the stalks up regularly with the hand, and steady them close together with a little earth; after which, with spade or shovel, give the whole a good earthing up.

TURNIPS grown as large as required for use, may be taken up and stored away in sheds, or buried in coal-ashes out of doors. A bushel or two of *Jerusalem artichokes* and *parsnips* might be treated the same, just to have a few in hand in case of very severe weather setting in. Those who have not proper store sheds for keeping these things in, might stack up a quantity against any wall, or in any corner, and cover the whole with coal-ashes, and, over these, with either staw, leaves, or fern. In case of very severe weather, a month's supply of full-grown *celery* and *endive* might be treated in just the same way.

James Barnes & W.

MISCELLANEOUS INFORMATION.

OUR VILLAGE WALKS.

(No. 9.)

How rapidly time flies! We have entered upon the last month of the year—we are hurrying towards the shortest day, after which we look out for the pleasant harbingers of spring; and yet it seems but as yesterday that we were sitting under shady trees, and walking only in the cool of evening. Bright and mild has been the last month—sunny and cheerful. It has shortened the winter by leading us so pleasantly almost up to the close of the year; and although, after Christmas, we usually have the severest weather, yet the days are perceptibly lengthening, and a new flower, and a new note, continually remind us that we are turning again to the cheerful sun. When far distant from his rays, nature droops. How lifeless is the soul when clouds of unbelief and sin shroud us from the glorious beams of the Eternal Sun!

But, the oak! there is still a remnant of dusky green upon its noble brow, in some sheltered situations, though all other trees are bare. It is the laziest in rousing from its winter sleep, and the last to throw off its rich apparel. A few brown leaves will even remain till the early spring gales whirl them away, but it does not retain them so generally as does the beech. It stands in its rugged simplicity, sternly and fearlessly among the rough blasts of winter, anchored and steadied by its own peculiar tap-root, and a striking sign of the promise made by the Lord to the forsaken land: "as a teil tree, and as an oak, whose substance is in them, when they cast their leaves: so the holy seed shall be the substance thereof." We still find an occasional acorn lying among the thick carpet of dead leaves beneath the boughs; it is full of language, and will give us abundance of food for a morning walk. The acorn is quite as much the emblem of old England as the rose,—nay, more so. It has for ages furnished her noble wooden walls that have so gallantly breasted her own element, braved "the battle and the breeze," and carried blessings temporal and eternal to many distant lands. If we reflect that every acorn our footsteps crush is the germ of a British oak, the parent of those unconquered decks and taper spars that guard our British hearths, whose unstained flag has never yet been lowered to any other ensign than that of the King of kings; if we reflect on this, we shall still more admire the smoothly rounded kernel, seated so snugly in its beautiful cup, and almost shrink from stepping on it as we pass. The oak must ever be dearer to the Briton's heart than any other tree; for, though it is a citizen of the world, yet it has been so long esteemed and used by us, above all other nations, that it is more peculiarly associated with the name and fame of Britain. But let us ever remember, that so long only as the standard of the cross floats from our masts and battlements—so long as we "set up our banners in the name of our God"—so long as the "Lion of the tribe of Judah" goes forth with our hosts—just so long, and no longer, will the British Lion triumph. "When the enemy shall come in like a flood," that standard only leads us to victory.

The oak is connected with the very earliest annals of our country. It was held in high veneration by the priests of her dark idolatrous days—the Druids, whose name is supposed to spring from "Deru," the name of the oak in the Celtic language. They held the mistletoe that grew on that tree as peculiarly sacred, and only cut it with a golden hook. How grateful ought our hearts to be that our lot is cast in happier days—in brighter light—in greener pastures—beside purer streams! The ancients generally revered the oak; and the mention made of it in prophetical scripture leads us to suppose it was then a valued tree. In the historical books it is particularly mentioned also. Beneath an oak Joshua "took a great stone and set it up," as a witness "of all the words of the Lord which he spake" to the people, lest they should deny their God. Beneath an oak sat the angel of the Lord in Optna, when he called Gideon, and sent him to be the deliverer of his nation. "Under every thick oak" did guilty, forgetful Israel in after times worship idols "upon every high hill," thus making this majestic tree a perpetual memorial of God's tender love, and of His people's deep and black ingratitude. When we rest beneath its summer shade, on the dry crisp grass among which its gnarled roots wander fantastically—when we mark the picturesque outline of its gigantic limbs, in our winter's rambles, as it towers above the quiet silent woods, let us hear what the oak can say to the heedless children of men, for it lifts up a warning voice: it tells us that our foundation, too, "is in the dust,"—that our age is nothing, even in respect of the trees of the field; and that except our covenant with the Lord is faithfully kept—if we, like Ephraim, are "joined to idols"—the Lord will "let us alone," in like manner, to perish in our sins.

The oak grows to an immense size in England, and there are many celebrated trees in different parts of this island, but the great nursery of British oak is the wealds of Sussex, the largest valley in Europe. Here this noble timber flourishes, and is the best and most highly esteemed for ship building. From the earliest period on record, this beautiful county has been celebrated for its oaks, and not less than 170,000 acres are covered with them. What a beautiful scene, both for eye and mind, must the wealds of Sussex present! The only remarkable tree I will name, among the many that England possesses, is Queen Elizabeth's oak at Heveningham, in Suffolk, because, whatever is connected with her name must be interesting to a Protestant people. It was hollow when she was young; and tradition says, she was wont to take her stand in it, and aim at the deer as they flitted by. The remains of this venerable tree are all that time has spared us, but it is very striking and affecting to the mind to look upon even a fragment of that which the eyes of so many generations have gazed on, and which has stood calmly among such scenes of bloodshsd and strife as desolated England in those eventful days.

The wood of the oak is more beautiful for furniture even than mahogany, when highly polished. I have seen slabs of the root, sawn out for small tables, of exquisite vein and beauty. Every portion of the oak seems of use. The bark, and leaves too, are valuable for tanning; the apple is used in the process of dyeing, and so is the sawdust also. The gall-nuts are the most powerful of vegetable astringents, and, on account of the deep black they produce when mixed with green vitriol, are the best of all materials for making ink. Pliny says that acorns beaten to powder, and made into ointment with lard and salt, are very healing when applied to hard swellings and cancerous sores. The smaller boughs of the oak, when crooked and twisted, are admirably adapted for rustic porches, garden-seats, and all wood-work of that description, and lasts a very long time.

We still wear garlands of oak-leaves to commemorate the restoration of kingly power in England. The oak sheltered our fugitive monarch in his days of trial, and its boughs greeted him when he returned in triumph. Let us adore the mercy of God, who has so long preserved to us the blessings of peace,—who has seated on our throne a line of kings, who hold the sceptre in one hand and the sword of the spirit in the other—the only sword that can protect the land. By God alone "kings reign, and princes decree justice."

CALCEOLARIA CUTTINGS.

Mr. Fish says, many people find it difficult to strike the Kentish Hero calceolaria. I find no other difficulty than that it takes a little longer time than some of the sorts named; that is, if proper cuttings are taken at the proper time, for I do not think they can be struck well before the middle of August, perhaps not so soon, unless the plants have been kept in a shady situation, and the flower-buds picked off to make it throw out young gross shoots; which, with a damp cool atmosphere, and not allowing the cuttings once to flag, are, in my opinion, the chief things to be attended to.

I obtained a nice strong plant the first week in June for propagating, but the wind unfortunately blew off one half of it the day after I had it, and so disrooted the remaining half that it fairly flagged for a week or ten days; after that it gradually recovered by treating it as you recommended for potted-up plants from the borders. I never allowed it to flower through the summer, picked the buds off as fast as they appeared, and kept it under a north-east wall; so that, by the middle of August, I was able to take five nice young shoots, which struck in five weeks, in the following manner, the same as I strike pinks, verbenas, and a host of bedding-out stuff:—

Under a wall facing north-east take out the soil, for one or more hand-lights, four inches deep; put in dry muck one inch thick, with a sprinkling of salt, firmly pressed down; on this put two inches of any light finely-sifted soil, then add two inches of the following, sifted and well mixed: three parts light sandy loam, one part leaf-mould, one part peat, and one part silver sand; make it level and smooth. The cuttings were then taken with one joint to each, cut straight through just *above* the next joint below, and whilst the soil was dry thrust in up to their leaves, had a good watering from a fine rose, and (for calceolarias) the light put on directly; let it remain for a fortnight, then cleaned and a little water; the light returned for another 10 days or a fortnight, looking at them occasionally to clean and water (for they must not be allowed to get dry); and if the sun shines on them much in the morning I stick in some fir branches to break it, but no shading on the lights. These are now strong plants, and have had cuttings taken from them twice. When they were rooted they were potted into small pots, and returned to the same place for a week, and then gradually inured to the air by tilting the light. Early in September I took nine more cuttings from the old plant, put them in a 4-inch pot, three parts full of crocks, a little moss over, filled up with sand, plunged in the natural ground, under the same wall as before, with a little salt at the bottom to keep out the worms; here I put on a small hand or striking-light under the larger one. These all struck in less than five weeks, and are now just filling their pots with roots. The middle of October I put in 14 more cuttings in the same way, which I shall pot off in a day or two. The last week in October I put in 12 more, and on the 7th of November 10 more, in pots, for the convenience of removing to a pit if the weather should set in severe; and I doubt not by turning-out time I shall have 40 or 50 strong plants. Had it not been for the first mishap with my plant, I calculated I should have had, at least, 100 by that time. I have not lost one cutting put in since August. This, however, is nothing like some of them; *amplexicaulis*, for instance, from one small plant since Easter I have 140 strong plants, and if I had worked it as I did the first three months I should have had 2,000. A friend of mine, after not being able to succeed, has adopted my plan with equal success. *Calceolaria amplexicaulis* I have struck all the summer in a flower-stand filled with sand, and kept thoroughly moist with water, shaded with a board in the front of a melon frame, with striking-glasses over them.—Geo. Penny, *Gardener to J. Swayne, Esq.*

EXTRACTS FROM CORRESPONDENCE.

Melting Wax.—I have tried an experiment last and this year with making wax, which saves much labour, yields more wax from the combs, and is, in my opinion, better altogether. As usual, necessity has been with me the mother of invention. I put the wax into an earthen vessel, and set it in the oven to melt, and then, when melted thoroughly, I pour off the wax into the desired mould. If a cullender, or other vessel with holes in, and a press on the top of the combs, and set over another vessel, was put into the oven, the wax would drain through whilst melting, and run every particle of the wax out, which would be a greater improvement still.—A Reader, *Pinxton*.

[This is from a cottager, and if every such reader would send us his scraps of information, we should very soon accumulate a mass of sound economical knowledge.—Ed. C. G.]

Pot-pourri. No. 1.—Take one handful of sweetbrier, one of orange flowers, one of sweet marjoram, one of lemon thyme, one of lavender flowers, one of clove pinks, one of rosemary, one of myrtle flowers and leaves, two of stock flowers, two of damask roses, two of Provence roses, two of verbena leaves, two of sweet-scented geranium leaves, half of mint, ⅓ oz. of cinnamon, and ½ oz. of cloves, the rinds of two lemons dried and pounded; lay some bay salt at the bottom of the jar; then a layer of this mixture; then of salt; and so on till the jar is full. No. 2.—Put into a large china jar the following ingredients in layers, with bay salt strewed between the layers: two pecks of damask roses, part in buds and part full-blown, violets, orange flowers, and jasmine, a handful each, orris-root sliced, benjamin and storax two ounces each, ¼oz. of musk, ¼lb. angelica root sliced, a quart of the red parts clove-gilly-flowers, two handfuls of lavender leaves, half a handful of rosemary flowers, bay and laurel leaves half a handful each, 3 Seville oranges stuck as full of cloves as possible, dried in a cool oven, and pounded half a handful of knotted marjoram, and two handfuls of balm of Gilead. Cover all quite close. When the pot is uncovered the perfume is very fine. No. 3.—A quicker-made Pot-pourri. Take three handfuls of orange flowers, of damask roses, and clove-gilly-flowers, one of knotted marjoram, one of lemon thyme, one of rosemary, one of myrtle, one of lavender, half of mint, six bay leaves, the rind of a lemon, and ¼ oz. of cloves; chop all, and put them in layers with pounded bay salt between, up to the top of the jar. If all the ingredients cannot be obtained at once, put them in as you get them, always throwing the bay salt between the layers of every new article.

TIGRIDIA PAVONIA CULTURE.—A clergyman, near Oxford, who has been highly successful in blooming this flower, thus details his novel mode of culture:—"The roots were planted in pots, in the autumn of last year, and kept in a cold pit through the winter. They were planted in deep pots, and with the compost recommended for hyacinths in your No. 7, p. 69, and, in addition to being drained with crocks, 1½ *inch of wood-stack refuse* and 1½ *inch of cow dung* was put into each pot, and *the compost on these*. The tigridias have been covered with a profusion of flowers of fine colour. How should they be treated now? I planted my hyacinths in the same manner, and nothing could surpass their vigour and fine colour. They were kept in a dark warm place, until two inches of shoot had risen."

[Keep the earth about the tigridias a little moist, till the end of January; the pots to be in the cold pit; then dry them slowly, and shake them out of the soil. Repot them about the end of March, and they will soon be in growth again. Will you be so kind as to try one pot—without removing the bulbs—but merely to keep it dry for two months, and then water it again, to see what difference, if any, that will make in their flowering next season, and report the experiment to us, for the use of others. The fine bloom on the hyacinths was more owing to the culture in the previous season.—ED. C. G.]

POTATOES—INDIAN CORN.—Last year I adopted your suggestions in planting my potato crop, and, although the results were not altogether what you predicted, I intend this year to adopt your golden rules, as they appear to me founded on well-ascertained facts. I should premise that I live in Jersey, on a hill exposed to every wind; the soil being sandy, resting on brick clay, under which, at an average depth of three feet, is the rock, a kind of clay slate, running into the trap for water. My earliest potatoes came up well, and promised a healthy crop up to April, when, you may remember, very chilling winds came on, which quite destroyed the stalk not only of mine, but also of those in the most sheltered situations, the only ones escaping belonging to those who planted late. The later kind of potatoes, such as ripen in July and August, were not so much affected, and yielded an excellent crop. The latest kind were attacked slightly with the murrain on the 15th July, when I had the stalks cut off, but as the tubers were not ripe I left them in the ground; however, not to lose the use of the ground, I sowed between the rows turnips. The result has been different from Mr. Weaver's, as I have not discovered any diseased tubers; but the potatoes are small, and I have determined to follow your first rule, only to grow such as ripen in August. People are making so much noise in England with respect to maize quarantai, that I would beg to say that I believe it to be nothing else than Cobbett's corn, perhaps slightly modified by Pyrenean cultivation. I grow it every year successfully, from grain which I obtained from a friend in Hampshire, who purchased the grain originally from old Cobbett himself. It has, therefore, been ripened every year for the last twenty years in Hampshire, without any other means employed than for other grain, being planted in April. I find a moderate return from the seed, not, however, as remunerative as wheat; but the great benefit to me, in my dry situation, is from the green leaves, which the cows eat with avidity; and they even eat the stalks when the cobs have been plucked, an operation which takes place in September. I send you a cob, taken at random, as a specimen, which I much wish some of your friends to grow a few plants from.—SCRUTATOR.

[The head of Indian corn is perfectly ripened, and very regular. It contains 276 grains, in 12 rows of 23 grains each. *Scrutator's* evidence, from an island where this corn can be ripened, that it is not so profitable as wheat, is another reason for its not being cultivated in England, where it can be ripened only under the most favourable circumstances of soil, situation, and season.—ED. C. G.]

BRAMBLES FOR BEE-HIVE MAKING.—The proper time for cutting these is between the middle of November and the middle of February. The age is not particular; but choose them as clear of knots as possible. Slit them ready for use immediately after cutting them, or you may store them away, drying them thoroughly in the air, and slit them as you want them, previously soaking them well in water. The above is a system adopted by an old cottager, a near neighbour of mine.—JOSEPH RICHARDSON.

TO CORRESPONDENTS.

⁂ We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense; and we also request our coadjutors *under no circumstances* to reply to such private communications.

HIMALAYAH PUMPKIN SEED.—*All* the seed which has been kindly sent to us by one party—and we have received none from elsewhere—proves to be abortive.

FUCHSIA CUTTINGS (*A. C. W.*).—You ask whether a *Fuchsia corolina*, raised from a cutting in July, should be kept dry during the winter? A fuchsia of any kind, or any other plant, propagated last July, will not be of sufficient substance to endure the drying process this winter; and a cold pit is a better place for it during the winter than a drawing-room, unless it is in flower. Some of our *F. corolina* are now in beautiful bloom; and it is our favourite of all the race.

PLUNGING MATERIAL FOR PIT (*Ibid*).—Tan is the worst thing possible for the bottom of a cold pit—unless it were kiln-dried,—and cinder ashes the best. Geraniums, and all other plants propagated lately, had better remain as they are, and not be "potted off" until the winter is over.

TREE MIGNONETTE (*Sylva*).—To destroy insects, which appeared upon this, you applied tobacco water, and now some of your plants look sickly, and the leaves turn yellow. If the tobacco and the water were in the proportions we recommended, the tree mignonette could not be injured by the application. We hope it is only a temporary check. Keep the plants dry till the end of next February; and no place is more suitable for them than a good window, and on fine sunny days to be turned outside for a few hours in the middle of the day—a treatment which we have recommended all along for window plants.

PRUNING TRANSPLANTED ROSES (*A. T. B.*).—Prune your transplanted roses now. Mr. Beaton said, long since, that roses ought to be pruned six weeks before they are transplanted; and he also repudiated the antiquated idea of transplanting roses not being pruned till the following spring. We need hardly say that we approve of Mr. Beaton's directions.

Capons (*S. Pen-and-ink*).—The very details you give show its cruelty, and one of such a nature as ought not to appear in pages circulating in family circles. It is quite true that the treatment of oxen and sheep is equally cruel; but here there is the plea of necessity—the flesh of bulls and rams is not eatable. Your suggestion is under consideration.

Paper-maker's Refuse (*Paper-maker*).—Your residuum, after making chlorine gas, is chiefly a mixture of glauber salt (sulphate of soda), common salt, and manganese. It might be put upon vacant ground, and would there destroy vermin. A little—5lbs to 30 square yards—would be beneficial, if applied twice or thrice a year, to asparagus beds—say early in March, July, and September.

Stiff Soil on Clay Subsoil (*I. L. Sheard*).—As you cannot obtain pipes for draining it, cut drains two and a half feet deep, and twelve yards apart, and fill these to half their depth with flint-stones, putting turf, &c., over these, in the usual course of draining. Mix coal-ashes and lime rubbish to lighten the staple; gradually breaking up and mixing a little of the subsoil until you get the surface soil a foot deep. Black currants and raspberries will probably succeed on your soil.

Black Barley (*X. Y. Z.*).—Our correspondent wishes to know if winter tares would not come in well after this barley, as of those tares he wishes to get a crop, and then one of Swedes after the tares? Now, as we have not tried the black barley, we cannot give an opinion upon the point; and a very intelligent farmer of Hampshire writes to us thus:—

"It is the general opinion among farmers, and my own experience goes with it, that they cannot get a good crop of Swedes, or turnips, succeeding winter tares; not, I believe, because there is not time enough, but because either the tares exhaust the peculiar food of the turnip, or because the roots of the tares render the soil so light and spongy that it does not suit the turnip root, albeit fond of a highly pulverised soil. I believe the latter is the case; but if the failures proceed from either of these two causes, the sowing the tares earlier, which will give the roots of the tares more time to possess themselves of every portion of the soil, is not likely to correct the evil. Your correspondent is probably aware that there is a variety of the winter vetch called *Racer vetches*, which come into blossom full ten days, or nearly a fortnight, sooner than the common winter vetch, and, consequently, must be fed off, or cut, earlier than the common sort. This gives a longer period for a succeeding crop of turnips to perfect themselves, and it also would give time to work the land with more than one ploughing, and to break down the sponge-like condition with a heavy Crosskill roller; so that the finely pulverised earth may sit close and tight to the turnip-seed, being at the same time easily permeable by its tender roots, which, I believe, is what is wanted. I never get a good plant of turnips on loose hollow ground. The Racer vetch does not give so large a produce as the common sort. When in full bloom it is about as bulky as the common winter vetch is when opening its first blossom. I usually sow some of both, side by side, so that I may have a succession."

List of Half-hardy Plants (*Tyro*).—What do you mean by "plants?" Do you require annuals or perennials—herbaceous or shrubby plants? Many greenhouse plants may be grown during the summer in a verandah facing the south, and be wintered in a pit.

Out-door Grapes (*H. N.*).—For your south wall at Wiveliscombe, we recommend you to grow the *Royal Muscadine*, white, and the *Black Hamburgh*. The *best celery* we have ever grown is *Nutt's Champion*. Keep your *hyacinths* in glasses in the dark until they have made more roots.

Potato Planting (*Stupid*).—Do not use manure of any kind. Your question about your peaches, &c., next week.

Glass for Greenhouses (*L. R. L.*).—We cannot recommend you to use glass tinged of any colour; it is more expensive, and has been proved to be without benefit. We recommend rough glass; it is cheap, strong, and prevents scorching. We are not responsible for advertisers. We cannot give you an estimate for glazing; ask two or three glaziers to tender for the job. Muriate of ammonia will not be of use to *remove* the crust from the inside of your boiler.

Rape Cake (*H. C. Mills*).—This, which your cattle refuse to eat, may be powdered, and drilled in with your turnip seed. A quarter of a ton per acre will be enough. It is found to be most beneficial on heavy soils.

Plumbago capensis (*W. Savage*).—The mealy appearance underneath the leaves is natural to the species. To clear your plant from the *red spider* dip it into tepid water; or use the sponge, as recommended by Mr. Appleby to-day. *Stephanotis floribunda* is a stove plant, and requires more heat than will agree with the other plants in your greenhouse.

Fuchsias Raised from Leaves (*H. Benton*).—The plants thus raised are the same as the parents from which the leaves were gathered. Pray refer to what we have said about wintering fuchsias in recent numbers, for our observations will apply to yours unless they are some particular species. *New varieties* of the chrysanthemum or of any other flower can only be raised from seed. Leave your *leeks* as they are; they may come round into good vigour in the spring. If your bookseller does not supply you with The Cottage Gardener regularly, go to some other bookseller in Plymouth, who, being in a larger way of business, does have a *weekly* parcel.

Swallows (*A Lover of Birds*).—Our correspondent says he saw two swallows pursuing flies under the south wall of his garden at Ramsgate, on the 18th of November, and one of the same birds was there on the 22nd. This is three weeks later than Mr. Jenyns ever saw even a straggler at Swaffham, in Norfolk. During 12 years' observations, he never saw one there later than October 31st. Those which stay after the departure of the main flock are supposed to have been late-hatched birds. The *swift* was seen as far north as Tynemouth Priory as late as the 4th of November in 1822; and in *Times Telescope* for 1825, it is stated that "*swallows* have been seen in mild weather to congregate previously to taking their departure so late as the middle of December."

Ventilating Taylor's Hives (*Civis*).—You say there is no ventilator provided for the *top* hives of this kind. In reply, we have to state that the upper box of "Taylor's Amateur's box-hive" should on no account remain upon the stock-box during the winter; let it be removed, and should the stock-box contain less than 20lbs. of honey, let this be made up to that weight by feeding by means of the feeder supplied with the box; the feeder remaining upon the stock-box for the winter makes an admirable ventilator and condenser.

Chinese Pigs (*J. Ball*).—You may write to J. Crisp, Esq., Hope Cottage, Norwood, Surrey.

Cuttings of Lechenaultia Formosa (*Homo*).—Those will strike very easily any time from the end of February to August, but the spring ones do best afterwards. Take small pots, drain well, and fill with equal parts of peat and sand, with a thin layer of sand on the top; water and press down, and they are ready for cuttings. Make the cuttings an inch, or rather more, in length; plant them firmly, and put a bell-glass over them, in a gentle bottom-heat. Thousands of other plants will grow from cuttings thus treated.

Greenhouse and Stove Plant Seeds (*Ibid*).—Acacia seeds, and those of all greenhouse and stove plants, as well as mimulus seeds, will grow best from spring sowing, any time in March. *Zinnias* ought to be treated as half-hardy annuals; that is, to be sown in a hot-bed, and the pots removed to a cooler place as soon as the seedlings are well up; but they will do after the middle of April without the aid of the hot-bed.

Moving Strawberries (*Alcyone*).—Your new strawberry-bed ought to be made with young plants, not by removing the old ones; from the middle of February to the middle of March is the proper time to plant the young plants, or remove the old ones, as you must do so between this and June.

Clematis and Honeysuckle Pruning (*Ibid*).—Those which have overgrown their space, and all other hardy climbers in like condition, ought to be pruned very cautiously and by degrees, any time from the end of October to the beginning of March. Proceed thus—unfasten all the ties, and separate the tangled mass of shoots from each other, then cut down one half of the branches to different lengths, say from a few inches to as many feet from the older wood; then train the other half over the whole space, and thus some of the top branches will have to be trained downwards to the bottom of the wall. But we will ask Mr. Beaton to write more fully on the subject.

Removing Lilies of the Valley (*Ibid*).—Do this forthwith. October is the best time. A deep sandy loam, partially shaded, suits them best. Select those plants or runners with the most prominent buds.

Vines Over-luxuriant (*H. A.*)—Your two sweet-water vines in a greenhouse, with a good south-west aspect, have only produced two or three bunches; but the young wood is three or four yards long, very robust, and with numerous laterals from these. You have allowed the vines to grow to the utmost, in the hope they will exhaust themselves, and now ask for our advice. We fear your vines are wrong at the root: the soil is, probably, too deep, too damp, and too rich. You had, perhaps, better take them carefully up (after pruning them pretty close) remodel the soil, or border, according to instructions in our back numbers, and plant them again. You will see a series of papers on vine culture in the course of a few weeks, beginning with to-day. Study the principles, as there explained, carefully, and you will not be misled.

Sea Kale Blanching (*Ibid*).—No wonder that all your plants died which had no more room, and no other protection from the hot steam and ammonical fumes of fermenting dung than that afforded by two or three house tiles. If you cannot have large pots of some kind, you had better raise annually a succession of plants to take up and grow in the manner recommended by Mr. Barnes.

Preparing Carrots, &c., for Storing (*B. M. J.*)—There is a deep ring, or collar, round the top of these. Cut so much of the carrot or parsnip away as to entirely remove that ring, for out of this the foliage would come forth. Do not apply *liquid manure* to your out-door kitchen-garden crops, except whilst growing and vigorous in spring and summer. The reference to *Brussels sprouts* should be to page 347. In very rich soil they do not button well.

Cutting Potato Sets (*R.S.*).—We never plant cut sets, and cannot advise it to be done at any time; but we would rather use them in spring than in autumn, if compelled to employ them. If the *Bangors* are a late-ripening variety, do not grow them at all.

Wintering Carnation Cuttings (*A young Amateur*).—Your carnation cuttings planted in August are most likely rooted, and ought to be taken up, carefully potted in a light compost of sandy loam and leaf-mould or very rotten dung:—if leaf-mould, one-half; if rotten dung, one quarter. Use pots 5½ in. across, drain well, and put a pair of rooted cuttings in each pot. Place them in a cold frame (not in a hotbed), shade from sunshine; water moderately, and protect with mats from severe frost, giving air freely in mild weather. See instructions under the head "Carnations." The address is correct.

Names of Plants (*J. Burgess*).—Your climber is *Loasa lateritia*. We are sorry to say that your other application is too late. (*Florum amator*).—Your flower is *Geum strictum*. (*Sigma*).—Your plant is a *Loasa*, but the specimen was too imperfect for us to determine the species; We think it is *volubilis*.

London: Printed by Harry Wooldridge, 147, Strand, in the Parish of Saint Mary-le-Strand; and Winchester High-street, in the Parish of St. Mary Kalendar; and Published by William Somerville Orr, at the Office, 147, Strand, in the Parish of Saint Mary-le-Strand, London.—December 6th, 1849.

WEEKLY CALENDAR.

M D	W D	DECEMBER 13—19, 1849.	Weather near London in 1848.			Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
13	Tu	Lucy. Red-throated Diver comes.	T. 58—34.	S.	Rain.	VIII	49 a. 3	6 23	29	5 29	347
14	F	Tufted Pocher comes.	T. 52—40.	S.	Fine.	1	49	sets	●	5 0	348
15	S	Greenfinches flock.	T. 55—43.	S.	Rain.	2	49	4 56	1	4 31	349
16	Sun	3 S. in Adv. Camb. T. ends. O! Sap.	T. 42—38.	N.E.	Rain.	3	49	5 46	2	4 2	350
17	M	Oxford T. ends. [comes.	T. 48—33.	N.E.	Rain.	4	49	6 40	3	3 32	351
18	Tu	Linnean Society Meeting. Brent Goose	T. 52—43.	S.	Rain.	4	49	7 38	4	3 3	352
19	W	Ember Week.	T. 48—40.	N.E.	Rain.	5	50	8 41	5	2 33	353

LUCY.—This virgin martyr was a native of Syracuse, and her festival is said to have been retained because it regulated, and still regulates, the occurrence of the winter Ember days. Having distributed all her wealth among the poor, she is said to have been denounced by him to whom she was betrothed, and was martyred on this day, A.D. 305, for adhering to her faith. She is said to have been deprived of her eyes whilst in prison, and in Italy and elsewhere it is usual for Roman Catholics suffering from diseases of those organs to address to her prayers for aid.

O! SAPIENTIA.—This was the commencement of a Latin anthem, which, in Roman Catholic times, began to be sung on this day, and was continued through Advent. The first line was "O! the wisdom (O! sapientia) which proceeded from the mouth of the Most High." This is the most probable explanation, although some writers think

in 1842, when the mercury rose to 61°; and the lowest observed heat, 11°, was on the 13th in 1846. During the 22 years there have been 70 days of this week on which rain fell, and 84 days were fine.

NATURAL PHENOMENA INDICATIVE OF WEATHER.—*Feathers* on the surface of water, dried leaves, dust, and other light bodies whirling about in circles, intimate the approach of rain. The eddies of wind which cause these movements are miniature illustrations of the great hurricanes of the tropics, which usually travel in a circle. *Fieldfares* usually arrive soon after the middle of November; and if they appear much earlier, as they do sometimes at the end of October, it portends a severe winter. The winter setting in with unaccustomed severity in their more northern haunts drives them earlier to our latitude. *Fish*, when they take the bait with more than ordinary readiness, gambol near the surface of the water, and thus shew great

tend rain. *Fires* burning bright in winter indi-

re out-of-doors, which increases the draught, and

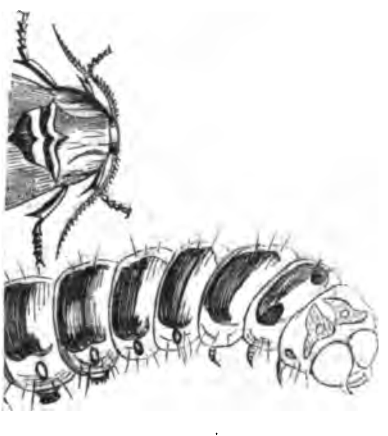
: promotes the combustion of the fuel. When

arises from the air being mild and moist, and

ıg opposite effects.

-RAIN IN INCHES.

1845.	1846.	1847.	1848.
30.447	29.759	30.028	30.039
30.360	29.697	29.992	29.978
—	—	—	0.14
30.311	29.610	30.056	29.831
29.908	29.486	30.032	29.732
0.02	—	—	—
29.836	29.571	30.018	29.810
29.749	29.425	29.972	29.640
0.02	—	0.01	0.22
29.773	29.749	29.885	29.800
29.753	29.678	29.806	29.731
—	—	—	0.68
29.821	29.793	29.772	29.937
29.556	29.590	29.538	29.872
0.05	—	0.03	0.01
29.417	30.166	29.464	29.856
29.254	30.119	29.339	29.771
0.33	0.22	0.34	0.01
29.358	29.851	29.520	30.094
28.987	29.814	29.388	29.808
0.17	0.04	0.01	0.01



young caterpillars living at

bark, and afterwards, when they are stronger, penetrating into the wood. When the existence of one of these creatures is detected in a

ement, relief comes too late for the tree, even if we

:he caterpillar, the mischief being already done.

this, the caterpillar should never be left undisturbed,

ıould be made to reach it by enlarging the opening

ife, or endeavouring to kill it by thrusting a piece of pointed wire up the hole. It is called the Goat moth from the peculiar smell both of the insect and its larva.

LIST OF THE MAPS.

Geology.

Map of the World (in Hemispheres), showing the Configuration and Physiognomy of its Surface.

Map of the World, showing the Distribution of Active Volcanoes, and the Regions visited by Earthquakes.

Hydrography.

Map of the World (in Hemispheres), chiefly with regard to the Division of the Ocean, and the Boundaries of the River Systems.

Map of the World, showing the Currents, Temperature, ascertained Depths, Extent of the Icy Regions, and Limit of the Ice-drifts of the Ocean.

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Map of the World, showing the Distribution of the Principal Birds and Reptiles over the Globe, with Lists of the Animals represented, giving their Names, Orders, and Species.

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"It is an excellent Work, and most useful for the upper classes of Schools and Colleges, as well as for general reference to the lovers of Physical Science."—*Rambler.*

LONDON: WM. S. ORR AND CO., AMEN CORNER, PATERNOSTER ROW.

till the following spring. We need hardly say that we approve of Mr. Beaton's directions.

Capons (*S. Pen-and-ink*).—The very details you give show its cruelty, and one of such a nature as ought not to appear in pages circulating in family circles. It is quite true that the treatment of oxen and sheep is equally cruel; but here there is the plea of necessity—the flesh of bulls and rams is not eatable. Your suggestion is under consideration.

Paper-maker's Refuse (*Paper-maker*).—Your residuum, after making chlorine gas, is chiefly a mixture of glauber salt (sulphate of soda), common salt, and manganese. It might be put upon vacant ground, and would there destroy vermin. A little—5lbs to 30 square yards—would be beneficial, if applied twice or thrice a year, to asparagus beds—say early in March, July, and September.

Stiff Soil on Clay Subsoil (*I. L. Sheard*).—As you cannot obtain pipes for draining it, cut drains two and a half feet deep, and twelve yards apart, and fill these to half their depth with flint-stones, putting turf, &c., over these, in the usual course of draining. Mix coal-ashes and lime rubbish to lighten the staple; gradually breaking up and mixing a little of the subsoil until you get the surface soil a foot deep. Black currants and raspberries will probably succeed on your soil.

Black Barley (*X. Y. Z.*).—Our correspondent wishes to know if winter tares would not come in well after this barley, as of those tares he wishes to get a crop, and then one of Swedes after the tares? Now, as we have not tried the black barley, we cannot give an opinion upon the point; and a very intelligent farmer of Hampshire writes to us thus:—

"It is the general opinion among farmers, and my own experience goes with it, that they cannot get a good crop of Swedes, or turnips, succeeding winter tares; not, I believe, because there is not time enough, but because either the tares exhaust the peculiar food of the turnip, or because the roots of the tares render the soil so light and spongy that it does not suit the turnip root, albeit fond of a highly pulverised soil. I believe the latter is the case; but if the failures proceed from either of these two causes, the sowing the tares earlier, which will give the roots of the tares more time to possess themselves of every portion of the soil, is not likely to correct the evil. Your correspondent is probably aware that there is a variety of the winter vetch called *Racer vetches*, which come into blossom full ten days, or nearly a fortnight, sooner than the common winter vetch, and, consequently, must be fed off, or cut, earlier than the common sort. This gives a longer period for a succeeding crop of turnips to perfect themselves, and it also would give time to work the land with more than one ploughing, and to break down the sponge-like condition with a heavy Crosskill roller; so that the finely pulverised earth may sit close and tight to the turnip-seed, being at the same time easily permeable by its tender roots, which, I believe, is what is wanted. I never get a good plant of turnips on loose hollow ground. The Racer vetch does not give so large a produce as the common sort. When in full bloom it is about as bulky as the common winter vetch is when opening its first blossom. I usually sow some of both, side by side, so that I may have a succession."

List of Half-hardy Plants (*Tyro*).—What do you mean by "plants?" Do you require annuals or perennials—herbaceous or shrubby plants? Many greenhouse plants may be grown during the summer in a verandah facing the south, and be wintered in a pit.

Out-door Grapes (*H. N.*).—For your south wall at Wiveliscombe, we recommend you to grow the *Royal Muscadine*, white, and the *Black Hamburgh*. The *best celery* we have ever grown is *Nutt's Champion*. Keep your *hyacinths* in glasses in the dark until they have made more roots.

Potato Planting (*Stupid*).—Do not use manure of any kind. Your question about your peaches, &c., next week.

Glass for Greenhouses (*L. R. L.*).—We cannot recommend you to use glass tinged of any colour; it is more expensive, and has been proved to be without benefit. We recommend rough glass; it is cheap, strong, and prevents scorching. We are not responsible for advertisers. We cannot give you an estimate for glazing; ask two or three glaziers to tender for the job. Muriate of ammonia will not be of use to *remove* the crust from the inside of your boiler.

Rape Cake (*H. C. Mills*).—This, which your cattle refuse to eat, may be powdered, and drilled in with your turnip seed. A quarter of a ton per acre will be enough. It is found to be most beneficial on heavy soils.

Plumbago capensis (*W. Savage*).—The mealy appearance underneath the leaves is natural to the species. To clear your plant from the *red spider* dip it into tepid water; or use the sponge, as recommended by Mr. Appleby to-day. *Stephanotis floribunda* is a stove plant, and requires more heat than will agree with the other plants in your greenhouse.

Fuchsias Raised from Leaves (*H. Benton*).—The plants thus raised are the same as the parents from which the leaves were gathered. Pray refer to what we have said about wintering fuchsias in recent numbers, for our observations will apply to yours unless they are some particular species. *New varieties* of the chrysanthemum or of any other flower can only be raised from seed. Leave your *leeks* as they are; they may come round into good vigour in the spring. If your bookseller does not supply you with The Cottage Gardener regularly, go to some other bookseller in Plymouth, who, being in a larger way of business, does have a *weekly* parcel.

Swallows (*A Lover of Birds*).—Our correspondent says he saw two swallows pursuing flies under the south wall of his garden at Ramsgate, on the 18th of November, and one of the same birds was there on the 22nd. This is three weeks later than Mr. Jenyns ever saw even a straggler at Swaffham, in Norfolk. During 12 years' observations, he never saw one there later than October 31st. Those which stay after the departure of the main flock are supposed to have been late-hatched birds. The *swift* was seen as far north as Tynemouth Priory as late as the 4th of November in 1822; and in *Times Telescope* for 1825, it is stated that "*swallows* have been seen in mild weather to congregate previously to taking their departure so late as the middle of December."

Ventilating Taylor's Hives (*Ciris*).—You say there is no ventilator provided for the *top* hives of this kind. In reply, we have to state that the upper box of "Taylor's Amateur's box-hive" should on no account remain upon the stock-box during the winter; let it be removed, and should the stock-box contain less than 20lbs. of honey, let this be made up to that weight by feeding by means of the feeder supplied with the box; the feeder remaining upon the stock-box for the winter makes an admirable ventilator and condenser.

Chinese Pigs (*J. Ball*).—You may write to J. Crisp, Esq., Hope Cottage, Norwood, Surrey.

Cuttings of Lechenaultia Formosa (*Homo*).—These will strike very easily any time from the end of February to August, but the spring ones do best afterwards. Take small pots, drain well, and fill with equal parts of peat and sand, with a thin layer of sand on the top; water and press down, and they are ready for cuttings. Make the cuttings an inch, or rather more, in length; plant them firmly, and put a bell-glass over them, in a gentle bottom-heat. Thousands of other plants will grow from cuttings thus treated.

Greenhouse and Stove Plant Seeds (*Ibid*).—Acacia seeds, and those of all greenhouse and stove plants, as well as mimulus seeds, will grow best from spring sowing, any time in March. *Zinnias* ought to be treated as half-hardy annuals; that is, to be sown in a hot-bed, and the pots removed to a cooler place as soon as the seedlings are well up; but they will do after the middle of April without the aid of the hot-bed.

Moving Strawberries (*Alcyone*).—Your new strawberry-bed ought to be made with young plants, not by removing the old ones; from the middle of February to the middle of March is the proper time to plant the young plants, or remove the old ones, as you must do so between this and June.

Clematis and Honeysuckle Pruning (*Ibid*).—Those which have overgrown their space, and all other hardy climbers in like condition, ought to be pruned very cautiously and by degrees, any time from the end of October to the beginning of March. Proceed thus—unfasten all the ties, and separate the tangled mass of shoots from each other, then cut down one half of the branches to different lengths, say from a few inches to as many feet from the older wood; then train the other half over the whole space, and thus some of the top branches will have to be trained downwards to the bottom of the wall. But we will ask Mr. Beaton to write more fully on the subject.

Removing Lilies of the Valley (*Ibid*).—Do this forthwith. October is the best time. A deep sandy loam, partially shaded, suits them best. Select those plants or runners with the most prominent buds.

Vines Over-luxuriant (*H. A.*)—Your two sweet-water vines in a greenhouse, with a good south-west aspect, have only produced two or three bunches; but the young wood is three or four yards long, very robust, and with numerous laterals from these. You have allowed the vines to grow to the utmost, in the hope they will exhaust themselves, and now ask for our advice. We fear your vines are wrong at the root: the soil is, probably, too deep, too damp, and too rich. You had, perhaps, better take them carefully up (after pruning them pretty close) remodel the soil, or border, according to instructions in our back numbers, and plant them again. You will see a series of papers on vine culture in the course of a few weeks, beginning with to-day. Study the principles, as there explained, carefully, and you will not be misled.

Sea Kale Blanching (*Ibid*).—No wonder that all your plants died which had no more room, and no other protection from the hot steam and ammonical fumes of fermenting dung than that afforded by two or three house tiles. If you cannot have large pots of some kind, you had better raise annually a succession of plants to take up and grow in the manner recommended by Mr. Barnes.

Preparing Carrots, &c., for Storing (*B. M. J.*)—There is a deep ring, or collar, round the top of these. Cut so much of the carrot or parsnip away as to entirely remove that ring, for out of this the foliage would come forth. Do not apply *liquid manure* to your out-door kitchen-garden crops, except whilst growing and vigorous in spring and summer. The reference to *Brussels sprouts* should be to page 347. In very rich soil they do not button well.

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Names of Plants (*J. Burgess*).—Your climber is *Loasa lateritia*. We are sorry to say that your other application is too late. (*Florum amator*).—Your flower is *Geum strictum*. (*Sigma*).—Your plant is a *Loasa*, but the specimen was too imperfect for us to determine the species; We think it is *volubilis*.

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WEEKLY CALENDAR.

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Lucy.—This virgin martyr was a native of Syracuse, and her festival is said to have been retained because it regulated, and still regulates, the occurrence of the winter Ember days. Having distributed all her wealth among the poor, she is said to have been denounced by him to whom she was betrothed, and was martyred on this day, A.D. 305, for adhering to her faith. She is said to have been deprived of her eyes whilst in prison, and in Italy and elsewhere it is usual for Roman Catholics suffering from diseases of those organs to address to her prayers for aid.

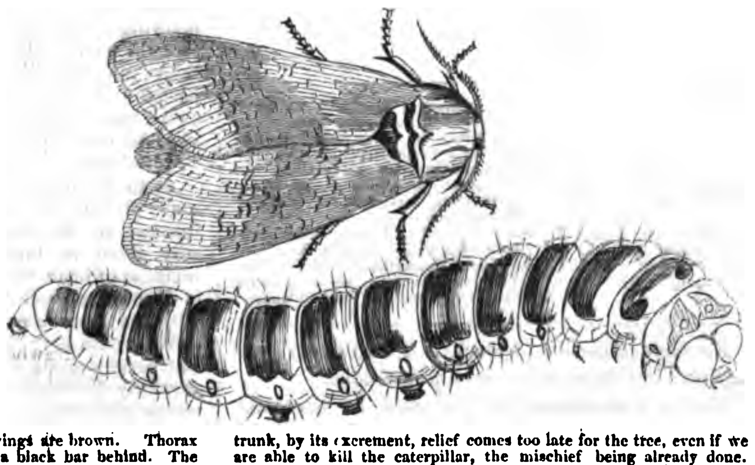
O! Sapientia.—This was the commencement of a Latin anthem, which, in Roman Catholic times, began to be sung on this day, and was continued through Advent. The first line was "O! the wisdom (O! sapientia) which proceeded from the mouth of the Most High." This is the most probable explanation, although some writers think *Sapientia* was one of the 11,000 virgins martyred with St. Ursula.

Meteorology of the Week.—The average highest temperature occurring during days in the last 22 years is 45.6°, and the average lowest temperature 26.7°. The highest observed heat was on the 13th in 1842, when the mercury rose to 61°; and the lowest observed heat, 11°, was on the 13th in 1846. During the 22 years there have been 70 days of this week on which rain fell, and 84 days were fine.

Natural Phenomena Indicative of Weather.—*Feathers* on the surface of water, dried leaves, dust, and other light bodies whirling about in circles, intimate the approach of rain. The eddies of wind which cause these movements are miniature illustrations of the great hurricanes of the tropics, which usually travel in a circle. *Fieldfares* usually arrive soon after the middle of November; and if they appear much earlier, as they do sometimes at the end of October, it portends a severe winter. The winter setting in with unaccustomed severity in their more northern haunts drives them earlier to our latitude. *Fish*, when they take the bait with more than ordinary readiness, gambol near the surface of the water, and thus shew great aptitude to feed, portend rain. *Fires* burning bright in winter indicate a cold atmosphere out-of-doors, which increases the draught, and a dry atmosphere that promotes the combustion of the fuel. When the fires burn dully it arises from the air being mild and moist, and consequently producing opposite effects.

RANGE OF BAROMETER—RAIN IN INCHES.

Dec.		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
13	B.	29.350 29.238	30.017 29.999	30.427 30.416	29.545 29.443	30.447 30.360	29.759 29.697	30.028 29.992	30.039 29.978
	R.	0.08	—	0.01	—	—	—	—	0.14
14	B.	30.033 29.490	30.088 30.073	30.490 30.389	29.523 29.430	30.311 29.908	29.610 29.486	30.056 30.032	29.831 29.732
	R.	—	—	0.10	—	0.02	—	—	—
15	B.	29.907 29.510	30.106 30.091	30.352 30.318	29.556 29.436	29.836 29.749	29.571 29.425	30.018 29.972	29.810 29.640
	R.	0.10	—	—	0.03	0.02	—	0.01	0.22
16	B.	29.419 29.266	30.038 29.952	30.405 30.338	29.336 29.316	29.773 29.753	29.749 29.678	29.885 29.806	29.800 29.731
	R.	—	0.06	0.04	—	—	—	—	0.68
17	B.	29.609 29.461	30.170 29.882	30.453 30.427	29.434 29.365	29.821 29.556	29.793 29.590	29.772 29.538	29.937 29.872
	R.	—	—	—	—	0.05	—	0.03	0.01
18	B.	29.585 29.402	30.402 30.281	30.451 30.437	29.806 29.581	29.417 29.254	30.166 30.119	29.464 29.339	29.856 29.771
	R.	—	—	—	0.05	0.33	0.22	0.34	0.01
19	B.	29.270 29.188	30.485 30.448	30.429 30.422	30.214 30.025	29.358 28.987	29.851 29.814	29.520 29.388	30.094 29.808
	R.	—	0.01	—	0.01	0.17	0.04	0.01	0.01



Insects.—The caterpillar of the Goat moth, both of which are represented in our drawing of the natural size, is most destructive to the wood of fruit-trees, though the elm, oak, willow, poplar, and walnut also, are liable to its attacks. It is the *Cossus ligniperda* of some naturalists, and the *Bombyx* and *Xyleutes cossus* of others. The caterpillar measures more than four inches in length, is smooth and shining, beset only here and there with single short hairs. It is dark red on the back, and the breathing-holes situated at both sides are of the same colour. The sides and lower part of the body are flesh-coloured; the head is black, the first segment also marked with black above. After remaining more than two years in the larva state, and casting its skin eight times, the caterpillar becomes of a light ochrish-yellow hue, shortly before becoming a chrysallis, which usually takes place in spring, when it makes a strong cocoon of chips of wood and small pieces of bark, which it has gnawed off. The chrysalis is yellow, and the segments are deeply indented and capable of much extension: its back is furnished with strong pointed spines, sometimes of a reddish brown colour. The cocoon is situated immediately within the opening in the tree, so that the pupa when arrived at maturity can press itself half out of the hole when the shell bursts, and the moth comes forth usually in the month of June or July, after having reposed in the pupa state for an indefinite time. When at rest the wings are folded together over the back in the form of a roof; it sits quietly in the day-time on the stems of trees, and is difficult to be distinguished on account of its grey colour. Its wings measure, from one tip to the other, nearly three inches, and many specimens more than this: the female is usually larger than the male. The fore-wings are ashy-white, clouded with brown, especially across the middle, and marked with very numerous streaks like net-work; the hind-wings are brown. Thorax ochrish in front, pale in the middle, with a black bar behind. The female is provided with a strong egg-depositor, with which she introduces her eggs into the bark of the tree—often 1000 in number; the young caterpillars living at first in and between the outer and inner bark, and afterwards, when they are stronger, penetrating into the wood. When the existence of one of these creatures is detected in a trunk, by its excrement, relief comes too late for the tree, even if we are able to kill the caterpillar, the mischief being already done. Notwithstanding this, the caterpillar should never be left undisturbed, and an attempt should be made to reach it by enlarging the opening with a garden knife, or endeavouring to kill it by thrusting a piece of pointed wire up the hole. It is called the Goat moth from the peculiar smell both of the insect and its larva.

The most important, and yet the least generally improved, of all the smaller structures with which the gardener has to operate is The Flower-pot. Perhaps of no other structure, of which the size is important, is the size so uncertain as in this. If you order "a two," as it is called, at the potteries in London, you would have a pot 18 inches in diameter at the top and 14 inches deep; but in Hampshire it would be 16 inches in diameter and 15 deep; whilst in other districts we have known the magnitudes still more differing. To remedy these discrepancies, it was wisely proposed, some years since, to distinguish flower-pots by the size of their greatest diameter; and in the following table we enumerate them according to that mode of distinction, adding also their relative desirable depths, and the old unmeaning names, which only inform the dealers in such articles that there are 60, 48, and so on to "the cast"—a piece of information conveying no useful suggestion to the gardener:—

Thimbles and thumbs: any size under three inches diameter at the top.

	Width of top in inches.	Depth in inches.	Old name.
Three-inch pot	3	4	60s
Five-inch................	5	5	48s
Six-inch	6	6	32s
Eight-inch	8	8	24s
Nine-inch	9	9	16s
Eleven-inch	11	10	12s
Twelve-inch	12	11	8s
Thirteen-inch............	13	12	6s
Fifteen-inch	15	13	4s
Eighteen-inch	18	14	2s

In addition to the above, there is a description of flower-pots called *uprights*, which are used for growing bulbous plants, the roots of which do not spread laterally but perpendicularly. They are deeper in proportion to their width than common flower-pots, and may be thus particularised—

	Top width in inches.	Depth in inches.	
Upright 15-inch (Old upright 16s)	15	16	Used for growing 7, or a large mass of Gladioli, and third-sized bulbs of Japan lilies; for ordinary-sized Alstræmerias; and for large tubers of Tropœolum tricolorum and its allies.
Upright 8-inch (Old upright 24s)	8	10	For 5 Hyacinths, Narcissi, or strong early tulips, like Golden Standard and Rex ruborum.
Upright 6-inch (Old upright 32s)	6	7	For 3 Hyacinths, or Narcissi, and for 1 strong Gladiolus, Auricula, &c.
Upright 5-inch (Old upright 48s)	5	6	For single Hyacinths, or Narcissi; for 5 Ixias or Crocuses; and for 4 dwarf early Tulips, such as the Van Houte.

For sizes larger than 15-inch it is needless to have any pots but those of the usual proportions.

Having thus disposed of the sizes, we may next consider the facilities for *drainage* with which they should be formed. All the sizes less than the 11-inch need not have any other than the usual flat bottom, with one hole in it; but all above that size ought to have three holes through the side, level with the bottom, and not in the bottom itself, as is usually met with. This is not only for giving greater facility to the drainage, but for letting in air more freely amongst the crocks at the bottom. Mr. Beaton brought another improvement into use, namely, pushing up the bottom of large pots while the clay is soft, so as to take the form of the bottoms of common wine bottles. In the largest pots this elevation of the bottom should not be more than two inches from the line of the bottom's level. The benefit is facilitating the drainage still more, and with much less crocks, so that there can be more soil for the roots to pasture in. To facilitate the drainage, the pots are sometimes made to stand upon three small feet, but the same object is quite as well secured by other forms, of which we shall give drawings in our next number, and without the same liability to be broken off, which render footed flower-pots so objectionable.

In our next notice we shall proceed to consider the material of which pots are made, and to give drawings of various forms.

THE FRUIT-GARDEN.

Fruit Forcing—the Strawberry.—Having in previous papers dwelt much on first principles, which indeed must be considered the key to all successful culture, we must now begin to descend to details, for many minutiæ remain to be explained, which, although referable to such principles, may be considered mere rule-of-thumb work.

The Strawberry.—We wrote upon this subject at page 39, as far as throwing out a few general suggestions, and we will now proceed with the routine, first offering some observations, as a further guide to those who are undecided as to what plan to adopt.

In the first place, we advise the amateur to be moderate in his aims, as to obtaining strawberries *particularly* early. It is well known that strawberry-forcing before Christmas is a very up-hill affair. This is owing to two unfavourable points,—the one, and that the principal, the comparative absence of sunlight; the other, the want to the plant of a sufficient period of rest since its last growing time, which rest, as we have before observed, engenders a more lively vital action—a principle which has been aptly termed "excitability."

As to the absence of light, it must by this time be quite obvious to every amateur (who has taken an interest in the explanation of principles repeatedly given in The Cottage Gardener), that an increase of heat, without a corresponding proportion of light, must end in unproductive results, not only with the strawberry, but with most other fruits.

We would here pause, and endeavour to draw the inexperienced amateur's attention to the necessity of carefully distinguishing between a system of forcing, where elaboration of sap as well as development of parts is necessary, and forcing in which mere development alone is the end sought. As an instance of the former, we may quote all our fruits; of the latter, such plants as the sea-kale, asparagus, &c. &c.

Many persons introduce their strawberry-pots to the hothouse shelf at once; and if a due proportion of atmospheric moisture is provided, such may meet with success. As houses are generally constructed, however, the odds are much against them, and a pit, or frame, with fermenting materials, will, in the present imperfect knowledge of first principles with many, be found by far the most efficient during the early stage of strawberry-forcing, and up to the period when the plants are in full blossom, or nearly so.

By reference to the remarks at page 39, it will be seen they only apply, briefly, to the potting of straw-

early period as the Keen's.

At page 39 the utility of bottom heat was pointed out. We must beg again to impress it on the minds of our readers. In doing so, however, we hope not to be misunderstood, as a very small amount will suffice. What is called a "lively bottom heat" would probably prove ruinous to them. By "lively bottom heat," gardeners in general understand something near 85°, and it is a term generally applied to pine culture. A temperature in any plunging material of 70° will be amply sufficient for the strawberry; but we would rather direct the attention of the amateur to principles than dry rules. We would say, in the earlier stage of strawberry forcing, encourage a bottom warmth of about 10° in advance of the atmospheric heat in which the leaves are growing. The novice will now naturally inquire what the atmospheric warmth must be, as that is to be the "key stone." We advise, for strawberries plunged in a pit or frame appropriated to them, and during the first stages (which reaches, we consider, up to the period when the flower truss is rising), a temperature ranging from 50° to 55°. When, however, they get their new leaves fully expanded, this strict adherence to a prescribed temperature must cease, and that all-powerful agent, SOLAR LIGHT, be allowed to influence the atmospheric temperature, suffering the thermometer to rise to even 75° maximum, occasionally, on bright days. Sun-light at this early period is not to be lost, and many persons who have heard of the importance of ventilation, persist daily in throwing their pits wide open, thereby losing the immense benefit of solar heat.

A pit, or frame, then, being provided, and the heat before named secured, the plants must be plunged as near the glass as possible, the leaves being certainly within a foot of it. And now some consideration must be had as to whether they are to fruit, and
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especially during our winter months; and, when they receive any, it must be very lightly administered; for, in general, it is only the mere surface which becomes dry, or, we might rather say, husky. In fact, there is no demand for extra moisture during the earlier stage. The fine plump bud in the centre is a storehouse of the necessary vegetable food, which holds out until the developing bud is furnished with a set of new leaves, whose office is twofold, namely, to cater for the young truss of blossom, and to create besides a surplus fund for the supply of the bud for the ensuing year. When, however, the new leaves are becoming developed, then the addition of moisture becomes necessary, and the water-pot will be in request. Still, caution is necessary; the amount of water, small at first, must be gradually increased up to the period of the first colouring of the fruit, which may be regarded as the climax of the affair. Thenceforward, as much water must be given as will enable the later set berries to complete their swelling; for, be it understood, the strawberry, like the orange, has blossoms and fruit in all their stages co-existent; and during the ripening process it becomes a nice point so to encourage the swelling of the later berries as not to spoil the flavour of those which are

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ripening. It is a very good practice to transfer strawberry-pots from their fermenting pits or frames to high shelves in houses, and such should take place the instant a crop of blossom is "set." They are removed by gardeners at various stages; some in pursuance of principle, others as a matter of expediency. We must, however, hazard our opinion, which is, that they are better in the pits or frames until well "set." When they are "swelling off," and provided they are thickly set, it is best to have recourse to the scissars, as in grape thinning: such increases the size of the fruit much. The quantity of berries left must depend on the strength of the plant, together with its resources at the root. In general, a good plant of Keen's seedling in an eight inch pot will mature from 12 to 20, or more, berries of a respectable size, the inferior berries and the "cripples" being removed in the thinning process.

To finish our consideration of the strawberry for the present, we may advert to ventilation and the use of liquid manure. It is a well-known fact, that strawberries "set" the better the closer they are to the glass. Now, both light and a free circulation of air are essential to this process, as also to flavour in the ripening. As soon, therefore, as the blossoms begin to expand, ventilation must be increased; indeed, in mild days it is well, if convenient, to pull the lights or sashes completely off. This, however, must not take place unless they have been gradually inured previously, and when the weather is of a genial character. As to liquid manure, the strawberry is much improved by it. Some clarified soot-water, with which Peruvian guano, at the rate of nearly two ounces to a gallon, has been blended, will be found a very great assistance, from the period of the truss of bloom-showing until the first berry begins to turn colour. If, however, liquid manure is constantly used, one-half the strength will suffice. We are not aware that soot-water is prejudicial at any strength; but we put about a gallon of soot to about twenty gallons of water.

One more caution; take care that the water is always about five degrees warmer than the average atmospheric temperature. R. Errington.

THE FLOWER-GARDEN.

Trees and Shrubs newly Planted.—Now is a good time to look over the flower-garden and shrubberies to see what can be done for young trees and shrubs that have not thriven since they were planted, and for older ones that once promised to reward us for our careful attention, but which from some cause or other are not looking so well as they ought to do. There need be little fear about such plants as were removed late last spring being yet in no very promising mood, as few seasons within my memory have been so ill-suited for young things newly planted. They experienced extremes of cold and dry heat before their roots could take much hold of the soil, so that many of them lost their leaves, and are still looking far from being healthy; their roots, however, must have made great progress since last August, for we never had a better autumn, and, I was going to say or a longer, one for planting and for lately planted things; so that, with judicious pruning this winter, we may reasonably calculate on a fine vigorous growth next season. All plants that are much stunted from a recent transplanting ought to be pruned very close before they begin to grow next spring, for of all the hopeless things in this world to expect that a free circulation of sap can run through a stunted hide bound shoot is the most hopeless, and we have no means of remedying this but by close prunning, and in future to be wiser, and get our pruning and planting finished before the winter sets in, so that the roots may be in action in the spring as early as the leaves. It is not too much to say, that in our climate every tree and bush every climber and twiner, with all trailers and creepers, and the whole race of evergreens, ought to be planted at the end of the autumn, and not only that, but all the pruning that is necessary, to bring the head of the plant within a compass corresponding to the strength of the mutilated roots, should be affected a full month previously to the removeal of the plant, and *not at planting time*, as is generally done; unless indeed your are planting from a nursery, when of course the plants will not be pruned till you get them home. If I made up my mind to plant a certain evergreen tree or bush on the 20th of September, I would cut off all the branches, or part of the branches, that I thought necessary to be removed, as early as the middle of August; and if, during the interval, some of those branches that were headed made a fresh attempt at making another growth I should like it all the better, as showing that the whole plant was so full of blood that the sap must either break the bark, or find a vent in an unseasonable growth at the tops of the main branches; and before this could take place, every bud on the tree, and every cell that composes it, must needs be as full of the rising juices as a newly-laid egg.

Now, there cannot be two opinions amongst practical men about this being the very best state for a tree to be in at the moment the fork and pick are laid to its roots for removal. We may differ as to the best month for removing large plants, but we are all agreed—at least I hope so—on the point, that every bud on the transplanted tree ought to be in the best possible means for a start next growing season; and it is not too much to say, that, those buds left when a tree is pruned and planted the same day, are just in the very worst to renew their growth, because they are then, like all the rest of the lower buds on the tree, much less charged with sap than those situated towards the top of the branches, so that the most prominent buds must of necessity be removed in the process of pruning.

Not many years back, there was a wide-spread controversy as to the merits of pruning at the time of removing trees and shrubs; one order of practitioners maintaining that not a twig nor a leaf should be removed from a transplanted tree, because, as they affirmed, the more leaves a tree possessed the more capable it must be of renewing its roots; and this idea took such a firm hold of the rising generation of gardeners that to this day many of them believe that the more leaves a cutting has the sooner it must root. Many of the older members of our ancient craft scouted this idea altogether, but still they were much in the minority, and at last were well nigh outvoted altogether. At this critical point Dr. Lindley's Theory of Horticulture was announced, and now, it was thought, "murder will out," and each party concluded that if the Doctor had any brains at all he must side with their view of the pruning question; at last the book appeared, and a most valuable and useful book it was, is now, and will be for the next two or three generations. A quotation from *Hales's Vegetable Statistics*, on the title page, was most ominous to the leaders on either side of the controversy. It runs thus—"Though I am very sensible that it is from long experience, chiefly, that we are to expect the most certain rules of practice, yet it is, withal, to be remembered that the likeliest method to enable us to make the most judicious observations, and to put us upon the most probable means of improving any art, is to get the best insight we can into the nature and properties of those things which we are desirous to cultivate and improve." This only strengthened the views of both parties still more firmly, as also did the following remarks by the author in the beginning of his preface. "It is, I confess, surprising to me, that the real nature of the vital actions" (the living principle) "of plants, and of the external forces by which they are regulated, should be so frequently misapprehended even among writers upon horticulture; and that ideas relating to such matters, so very incorrect as we frequently find them to be, should obtain among intelligent men in the present state of what I may be permited to call horticultural physiology." But the strangest part of the story is yet to be told. The Doctor proved by his "Theory" that both parties were quite right, and they had no occasion to make any fuss on a matter so really simple. The drift of his explanations may be summed thus:—If you remove a tree without much hurting its roots, you will have no reason to prune away any of the branches, for the more leaves it has the sooner it will renew any of the roots that may have received any slight injury. On the contrary, if a tree is taken up badly, or, which is the same thing, if its roots are so situated that you cannot possibly get them all out without cutting part of them, then some pruning is necessary, because the large surface of leaves would empty the tree of its juices by perspiration faster than the roots in their crippled state would supply them. Now, any one well versed in the subject, and knowing the heartburnings which the question caused at the time, must see clearly enough that the author here weakened his own authority in thus striving to please both parties, or, at any rate, his anxiety not to displease either. A commendable policy with our intercourse with the world, but the last on which an independent mind should lean when dealing on the truths of science. The real state of the question stands thus, and we cannot gainsay it:—No man, or set of men, ever lived, or ever shall live, according to the present constitution of things, who could, or can, transplant a large tree without injuring its roots, and that very materially, and it is a mistake which almost all of us fall into to suppose that the power of the leaves for good is according to their number. Ten strong powerful leaves in a healthy vigorous state will do more good than five times the number in a languid state, as they are often seen to be the first year or two after a tree is removed. Therefore, the great aim of the planter should be to prepare his trees before their removal, so that whatever the number of the leaves may be in the following season, every one of them should be in a flourishing condition, for unless they are so it is needless to look for a speedy restoration of the roots or branches. All ornamental trees and shrubs, particularly the latter, will require a little pruning, more or less, every season; but when the subject has been well attended to for years, all that will be needed can be easily done in summer during the growing season. When a tree or bush begins to get naked below, it is a sure sign that it ought to have been pruned long since, or that the situation is too crowded for it, for nakedness produced by starvation or old age always begins at the top of the plant. How plants become naked at the bottom is this: the first two or three tiers of the lower branches get over-topped by some of those immediately above them, and these, by throwing off the rain and obstructing the sun from them, soon cause them to dwindle away by degrees until they die outright, and leave a naked void. This is the most common case of bad management, and it often results from a mischievous doctrine which has taken hold of some people's brains, and which they never cease pushing at you right and left. In the park and forest, it is all very well to see plants growing in their own way, and a naturalist may go and enjoy them their until their toes get frost-bitten, for aught that a gardener can have any objection; but within the boundary of the garden every plant ought to be attended to as carefully as if it were grown in a pot for a London exhibiton; staked, trained, and pruned as regularly as a geranium. But having occupied so much with these general remarks, I must put off the subject of pruning to another day, and meantime, any tree or shrub, or climber, which looks stunted, or in an impoverished state, ought to be examined at the roots, beginning by making a trench outside of the roots, as our Editor advised to take up the Magnolia, at page 14, and after freeing the tops of the roots a little, and all the way round, shovel out all the poor soil, and fill the trench with a good compost of fresh soil and some rotten dung. If the plant is on the grass, put a layer of the bad soil under the turf before you replace it.

D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

Protecting Plants, &c.—So mild and open has been the autumn, that we began to think the flower-garden would retain its beauty until Christmas. Much as our husbandmen may grumble at low prices, they must own that the season has been almost unparalleled for autumn sowing, and moving and stirring the soil. When writing last week, many groups of salvias, dahlias, calceolarias, &c.,[*] were nearly as gay as they were in September, but a frost of some 14 degrees, on the 28th of November, settled all their pretensions to beauty for this season. So sudden and unexpected was the frost, that many plough teams had to return to the farm-yards, after vainly attempting to penetrate the iron-like soil; and some of us had to put our wits into requisition, as to the means of saving many rather tender favourites that had been supplied with merely temporary and partial protection, that they might be rendered more hardy and sturdy than they would have been if transferred at once to their winter quarters.

In all these schemes for keeping the hardier greenhouse and bedding-out plants as long out of the house or pit as possible, *dryness* in the situation should constitute the first consideration. For promoting this object, the ground upon which the plants stand should be higher than the ground level, and if bottomed with concrete or asphalt, all the better, as the damp would thus be prevented rising so freely. Whatever the means of occasional protection you employ, whether glass, asphalt, felt, or varnished calico, let it be such as will effectually exclude rain; as much of the success will depend upon keeping the plants dry, the atmosphere at this season furnishing nearly as much moisture as they will require in such circumstances. In placing the plants in pits and frames the same principle must be attended to, or mildew and damp, if not frost, will soon commit sad ravages. Such a dry and raised position is better and safer for the plants than protecting them in old cucumber or melon frames or pits, from which the dung and soil have not been removed, because through them damp will assuredly rise, and more especially if any little heat still remains in the decomposing organic matter.

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[*] An old calceolaria, a very free bloomer, but with small yellow flowers, named *rugosa*, is the best for late autumn work, as it presents a dense mass of yellow long after the beauty of the larger and better kinds has been upon the wane. Small plants are useful for lighting up and contrasting with other colours in a window.

Next, to keeping your plants dry—(that is just in such a state that the juices are kept slowly in motion, and the leaves just prevented from flagging, by giving a little water, and then only)—the most important thing is to preserve them in a low equal temperature, so that weakly diseased growth be not encouraged. Hence, those who followed our advice in potting at a late period some geraniums, calceolarias, &c., and placed them in bottom heat, must beware of shutting the plants up for a long period, even in cold and stormy weather, or they will be sure to suffer greatly from damp. The first opportunity, therefore, should be taken for setting the plants upon the surface of the bed, after that surface had been covered with dry ashes, mixed with quicklime unslacked, if it can be easily got, which will absorb a considerable portion of moisture, and even then the plants should be removed as early as possible to a dry position, where no damp from fermenting matter could reach them. I find that plants taken up from the border, and treated as recommended, made abundance of fresh roots in from a fortnight to three weeks, and being gradually inured to a drier and a colder atmosphere were fitted to be placed anywhere, so that frost did not reach them.

Frosted Plants.—If, however, "once upon a time,"—as many of the old story-books commence their wondrous tales—you should inadvertently give admittance to the icy king, do not either at once give up your plants for lost, nor yet be in too great a hurry to dislodge your freezing enemy. The advice which the King of Day gave to his ambitious yet earthy-headed son, when he counselled him to avoid extremes, and take a middle course—might, in many cases, be regarded as a good rule for regulating many gardening operations. Like Phaeton, lashing into madness his father's fiery steeds, many of us get into such a hurry that we cannot spare time quietly to ask ourselves as to the *why* and the *how* of our doings. Many greenhouse and cold-frame plants will stand several degrees of frost uninjured—that degree of low temperature which they will endure being in proportion to the nature of the plants, and the means which have been taken to harden their constitution: always provided they are allowed, or rather forced, to thaw again slowly and gradually. Of course there are limits, beyond which no care nor patience can ever recover plants thus frosted, such as when the sap vessels and cells are so effectually burst that no circulation can take place, and consequently decomposition must ensue. But when this extreme injury has not been reached, the plants may generally be saved by the avoiding of any sudden change. Thus, in such circumstances, whatever covering the plants possessed should remain upon them for the following day or two, and all the more if those days should happen to be bright and sunny. If the frost continues, turn the old and add fresh covering, to prevent it penetrating farther, and thus make matters worse. If a sudden and warm thaw succeeds the frost, allow the covering to remain, until the temperature within and without should become gradually equalised. If, however, the storm has been severe, and the quantity of necessary protecting materials bulky, and such as would easily ferment in a close warm atmosphere, then this fermentation must be avoided by removing a portion, as heat thrown in upon the plants from such a cause would be even more injurious than exposing them at once to a mild atmosphere.

From want of attention to these simple matters, young gardeners and amateurs frequently lose many of their floral favourites. They know that in general circumstances their little pets dearly love the sun's light, and they hasten to expose them to his influence, displaying as much wisdom as parents who allow their young ones to place their very cold toes and fingers as near as possible to the blazing fire, and then wonder how it is possible that *they* can be so crippled with chilblains! Every good housewife knows that it would be downright madness in her to place frozen butcher's meat, or frozen vegetables of any kind, in hot or boiling water, well aware that she would only disgust and injure her guests with a mass of insipidity and decomposition. She places them first in the coldest water she can procure, that the frost may be discharged slowly and gradually, but effectually, before she commences the cooking process. Precisely the same principle must be resorted to in the case of tender plants slightly frozen, only, in the present case, as any addition of moisture would be a future annoyance, we must dispense with cold water, and allow them to be thawed by the milder atmosphere gradually reaching them. "But then," says friend Still-have-a-doubt, "it seems so odd that you should be always recommending as much light and air as possible to *growing* plants, and yet here you wish me to exclude for a time the influence of both." In reply, there are few general rules without exceptions, and these exceptions, if not too numerous, only give strength and validity to the rule. But, in the present case, we desire no exception, as the rule is unbroken. We advise that greenhouse, window, and bedding-out plants, preserved during the winter in places without artificial heat, should be kept from growing as much as possible, by keeping them cool and dry. We advise that they should have every possible exposure to light, that the little growth which does take place might prove an addition to the substance of the plant, and not a mere extension of the matter it previously contained, such as would be the case if the plants were in a dark sultry atmosphere. And we recommend abundance of air for keeping down all those fungous broods which gardeners technically call damp, and which, if allowed to accumulate in a close warm atmosphere, would soon make all your plants fit for the rubbish heap. Hence it is that the covering up of plants from light and air for any length of time, when still in a growing state, is attended with such disastrous consequences. Very different is it in the case before us. The plants are slightly frozen, and, therefore, growth is at a standstill. The cold will prevent moisture rising and being deposited, and, therefore, there will be nothing to feed and support those fungous damps which usually visit us. If the plants are not frosted enough to be permanently injured, they might thus be shut up for months, without taking more injury, provided the frost lasted as long. I think it was Mr. Errington who some years ago, in one of his admirable papers, recommended the allowing young cauliflower-plants to be slightly frosted before covering up. Upon the same principle, the nearer your hardy greenhouse or window-plants are to the freezing point, the more safely will they bear a lengthened covering up from light and air. The difficulty we have chiefly to contend with is, the rapidity of the changes of temperature in this country, which render frequent covering and uncovering necessary. For instance, verbenas are yet quite green, after the frost on the 28th, but a temperature of 50°, and a heavy fall of rain, will keep them so growing again that they will become easy victims to the next severe frost. Were our winters confined to a certain number of frosty weeks or months, we might allow many of our bedding-out plants to be slightly frozen, and then cover them up for the winter, removing the covering only when the cold season had passed away. This is the treatment that the majority of Alpine plants receive, from nature clothing them in winter with a mantle of snow, and the care and attention requisite for their cultivation in this country arises not from their tenderness, but from the changes to heat and cold, to which they are unavoidably subjected. R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

More about Blocks.—There are some plants that require fastening to the blocks in a peculiar manner. Though we have written pretty largely already on this part of the subject we cannot quit it without mentioning the treatment the following plants must have in order to cause them to grow satisfactorily:—

Cattleya citrina (the Lemon-scented Cattleya).—This is a beautiful species, with oval-shaped middling-sized pseudo-bulbs and lanceolate leaves. The whole plant is glaucous, that is, of a milky-green colour. The flowers are solitary, on long peduncles; the colour, a beautiful greenish-yellow; they are large and handsome. The peculiarity in culture is that, as it grows downwards, it is necessary to fix it on a sloping or perpendicular log; the last formed pseudo-bulb to be the undermost or lowest. In that position, without any bark (unless a block of the cork-tree is used) or any moss, it will thrive and flower well. If, on the other hand, the plant is placed in the usual way, with the youngest bulb uppermost, it will make every growth less and less, and will eventually perish. This plant, with its beautiful fragrant flowers, which last a long time in bloom, is deservedly a favourite.

Scuticaria Steelii (Mr. Steel's Scuticaria).—This is also a beautiful species, with a cluster of short stems and leaves, frequently 2 feet long. These are round, something like a rush, but thicker. Unlike most other orchids, it has no pseudo-bulbs, both leaves and flowers springing from very short stems. The flowers are large and sometimes numerous; their colour a deep cream, richly marked with brownish-red. As this plant has leaves that naturally hang down, the proper way to grow it is thereby indicated. The plant must be fixed to one side of a block, and a small quantity of moss put about it, allowing the young roots to project beyond the moss. The finest plant we ever grew, or ever saw, was grown in the rich collection of T. Brocklehurst, Esq., at the Fence, in Cheshire. This plant was fastened to a block in the manner we have mentioned; it grew very well on it for a year; then a pot, the top of which would just admit the block within it, was filled with a compost of small chips, peat, and chopped sphagnum; and a strong copper wire was put round the pot just under its rim. One end of the wire was left long enough to stretch over the pot, to form a handle; it was put under the wire on the opposite side, and the end twisted round itself to keep it firm in the pot. The block, with the plant on it, was then laid upon the compost, and just patted down sufficiently hard to keep it firm in the pot. A small quantity of *Lycopodium denticulatum* (Toothed Club moss) was planted round it, and the pot was hung up within eighteen inches of the glass. In this situation it had abundance of water given to it during the growing season, when it produced a considerable number of healthy fine leaves, some of which were from two to near three feet long. As soon as these leaves were matured very little water was given to it, and the temperature of the house, it being then winter, was considerably reduced. The following season we had the pleasure to see it produce several flower stems; and the flowers bloomed in great perfection. There were open at one time upwards of a dozen of its truly beautiful flowers. This plant grows on branches of trees in the hot moist woods on river-banks in Demerara. The clusters of stems and leaves of the plant catch the falling leaves, bits of stick, &c., and the humidity of the peculiar situation causes moss to grow about the plant. Being aware of these particulars we adopted the block, compost, moss, and abundance of moisture, as above stated, and the consequence was that the plant did its duty nobly, and amply rewarded us for our pains.

Notylia bicolor.—The late Rev. John Clowes, of Broughton Hall, near Manchester, a gentleman who was a most enthusiastic admirer and successful cultivator of orchidaceous plants, imported this curious little epiphyte. Unfortunately we are not in possession of its history as to its native country, or what kind of flowers it produces. We were informed by Mr. W. Hammond, Mr. Clowes' late gardener, that it is a beautiful species. The plant is small, with thick, short, fleshy leaves, disposed in two rows, and spotted with dark brown. Messrs. Henderson possess two plants of it that were obtained from Mr. Clowes, just before his death, in exchange for some other plants. We are indebted to Mr. Hammond for the information how to cultivate it. In that respect it is a truly singular plant. It will not grow in a pot, neither will it grow *on* a log. How then is it to be cultivated, on a stone, or on nothing? our readers ask. Patience! we do not mean to keep the secret any longer, but print it for the benefit of all concerned. We described that *Cattleya citrina* requires to be grown downward, *Scuticaria* on one side of the log in a pot, but this curious, fantastic little fellow is not satisfied with those ways, but must have a way of his own, a situation different to any other plant. This curious place is not on the log, but directly *under* it. This plant has antipodean propensities; he will only thrive with his head downwards and his roots upwards. The block should be round; the wire fastened at each end; four or six tin tacks driven in at each side; a small quantity of moss laid on the log, and fastened to it with metallic wire. Then the plant should be held to the block upon the moss, and the wire brought over the roots to fasten them to the block, which may then be hung up near to the glass, the plant being under the block, and frequently syringed and occasionally dipt over head, the log and all, in tepid water. With this treatment this curious little plant will grow, and, we hope, flower, though our plants are not strong enough yet to do so.

The plants belonging to the genus *Notylia* are all of small stature, more curious than beautiful. They are mostly natives of Demerara, requiring great heat and moisture to grow them successfully. We should, therefore, recommend *Notylia bicolor* to be grown in a similar way with regard to heat and moisture.

We trust we have now given full and explicit directions how to manage orchids that require blocks to grow upon. As the space allotted to us this week is nearly filled we shall not now commence with the third head or division of orchid culture, but will take this opportunity to fulfil our promise to give a few hints on the culture of exotic terrestrial (earth-growing) orchids.

Terrestrial Orchidaceæ.—Amongst these occur the beautiful *Peristeria elata* (Tall Dove Plant), and the no less elegant *Anœctochilus setaceus* (Fringed Anœctochilus), remarkable for its lovely variegated leaves. In this place we shall give the generic or family names by which they are known:—Acanthophippium, Arundina, Anœctochilus, Bletia, Bromheadia, Calanthe, Cœlia, Cymbidium, Cypripedium, Cyrtopodium, Eulophia, Goodyera, Govenia, Grobya, Isochilus, Lissochilus, Neottia, Paxtonia, Peristeria, Phaius, Sobralia, Stenorhynchus, and Warrea. It is evident, therefore, that this section of orchids is large and important. There are some few more, but they are either small species or have insignificant flowers, and, consequently, are not worth cultivating.

Soil.—These plants require a light, rich compost. Turfy loam, half-decayed leaves, and sandy peat, in equal parts, will suit the most of them. If some charcoal, broken into small pieces, be added, it will be useful. Let the pots be rather deeper than those for epiphytal orchids; and be careful to drain them well, by putting at the bottom of each pot from 1 inch to 3 inches of broken potsherds, according to its size. The season of potting ought to be in early spring, and in order that that may be a right time, they ought to be at rest by the end of October, and kept dry till the right potting time. After potting they should have more heat and moderate supplies of water, and as they advance in growth more water should be given.

Heat.—The Indian species require the same heat as the E. Indian house, and the others as the Mexican. If a tan bark bed is convenient, they will all thrive the better for being half plunged in it. Plenty of air must be given them during the season of growth on all suitable occasions, therefore it would be better if a house could be devoted to them alone; as, however, one cannot have separate houses for every section of plants, these terrestrials may be placed at one end of the house, and air given to that end more abundantly.

Rest.—All these plants require a perfect cessation of growth. It is best to accomplish this during winter, excepting such as flower during that season, of which *Stenorhynchus speciosus* is an instance. Some, too, have no bulbs to hold a reservoir of life while the plant is at rest; we may mention the beautiful *Anœctochilus* as an example. Such plants must have a small quantity of water given to them during winter. The plant last mentioned is such a beautiful and desirable one that we must refer to it again at an early opportunity.

FLORIST FLOWERS.

We have not left much room for remarks on these, but at this time of the year there is not much work to do beyond the ordinary routine of conserving the objects of the florist's care. Protect from frost effectually; give air whenever the weather will permit; shelter the *tulip bed* from heavy rains; do not forget the *ranunculus bed*, but turn it over once every three weeks or a month, doing this in dry weather. Now is a good time to plant *roses*; next week we hope to be able to give a list of such new ones as are worth cultivating, and have been proved during the last year.

T. Appleby.

THE KITCHEN-GARDEN.

Asparagus, when taken up and forced, requires some attention with regard to the just regulation of the bottom-heat, which should be kept moderate, and, if the slight hot-bed on which the roots are placed is likely to become too warm, it is an easy remedy to bore a few holes with a stake along the middle of the bed, and pour down a few pots of water. The plants on their being first placed on the old decayed dung, leaf-mould, or tan, of which the hot-bed is composed, should be covered very shallow at first, and as soon as the shoots begin to make their appearance they should be covered over two or three inches deeper. Whilst in full cut, the asparagus may be much improved by an occasional application of tepid liquid manure, with a small portion of salt added to it.

Celery.—When frost is likely to set in, the most forward of the sticks of celery should be slightly protected. Mulch, or fern, or pea and bean haulm, will serve for this purpose, and should always be prepared in readiness for any sudden emergency; stakes, crooks, and small poles, the sticks of peas and scarlet-runners, are all good articles for pegging over such protections to prevent their being blown away.

Kidney Beans.—Those who have the convenience for forcing this vegetable will find it a good plan, for the next six or eight weeks, to raise the plants first in light healthy soil placed in pans at the hottest end of the structure, removing them as soon as they are up close to the glass and light, and planting them as soon as their young stems are erect, and whilst the plants are young and sturdy, into the pots, pans, or boxes, where they are to remain, and produce their crop. These pots, pans, or boxes, with the soil (which should be light and open) in them, must of course at this season be placed in the house to warm a day or two previously to planting out; and, the principal point to attend to at this time of the year, is to keep the plants high and in the middle of the pots, leaving a cavity next the pot and all round it, so that water may be applied without wetting the stem of the beans. Careless watering in the middle of winter often proves injurious by producing canker and shanking. A quantity of good, well pulverised soil should always be kept under protection at this season for potting and framing purposes.

Cucumbers will now require great care. A moderate heat must be maintained, and air must be admitted with judgment, or the requisite health and strength of the plants cannot be maintained. Seed of the best varieties should be sown in succession, and the seedling plants early pricked off singly into small pots, lightly plunged and kept close to the glass. Water must be applied very sparingly and with judgment.

Potatoes.—The walnut-leaved kidney and other early varieties should be potted singly, and placed in heat to commence their growth in readiness for turning out under glass or on slight hot-beds.

Mushroom-beds should be made in succession as previously directed, and those in bearing carefully attended to, and kept clear from rubbish. Where necessary, the beds should be covered with litter, but the short mulch should always at gathering time be cleared off, or it will exhaust the bed, by the encouragement it gives to the spawn to run out. A little additional litter may be added as required, so as to keep the beds in regular and uniform bearing, and gentle applications of tepid liquid manure will be found of great benefit to those beds that have been well gathered from. Where the convenience of hot water-pipes or other artificial means can be commanded for mushroom culture, so that the right temperature can be at all times maintained, no kind of litter-covering need be applied.

Spading in.—The spade may be used to great advantage in many parts of the kitchen-garden at this time of the year in more ways than that of deep digging, trenching, and ridging. Many of our readers have a fine quarter, or quarters, of strong cabbage-plants and the like, which have become very foul with weeds and fallen leaves. Now, these said quarters have been talked about probably day after day, and the hoe determined to be put amongst them; but every fine day that has befallen something or other has prevented its being done. Now, the hoe is a very important tool as an earth-stirrer and weed-killer, either in the summer or in fine dry weather at any season, but not at this catching season of the year, when the weather may be fine one day and wet the next. Now, the spade will set all this to rights, and instead of Messrs. Chickweed & Co. being robbers of the crop, will become its feeders, and the plots will be neat and tidy for the winter if they are just spaded in,—that is, turned in with the spade between the rows of plants. James Barnes and W.

MISCELLANEOUS INFORMATION.

OUR VILLAGE WALKS.

(No. 10.)

When walking on the banks of a fish-pond a few days ago, I disturbed a moor-hen, which flew from the shelter of a spruce fir at the edge of the water, and took refuge among the rushes that grew at the extremity of the pond. This simple occurrence brought to my mind very vividly an interesting fact that took place many years ago, and of which I was myself an eye-witness. The moor-hen is well known to be a very shy, timid bird; but my father, who was always extremely fond of birds, succeeded in so completely gaining the confidence of a pair of these elegant little creatures, that they would come to him and feed at his feet. They knew his garden dress, and they knew his voice; and I have stood concealed behind a tree, and watched while he uttered his peculiar call. Instantly the two birds started from their rushy shelter, and skimming the water with rapid wing, alighted at his feet, and fed on the bread which he crumbled. It was a beautiful picture of benevolence and trust; but, like many earthly friendships, it was doomed to a sudden and unfortunate conclusion. An intimate friend, unacquainted with these circumstances, returned one day with his gun, and displayed with exultation the result of his sport. It was one of my fathers pet moor fowl. The grief of his friend was scarcely less than his own, when the explanation was given of these facts—but it was all too late; and I cannot now bring to mind whether the survivor continued its former habits, or deserted the spot on the disappearance of its mate. The moor-hen's nest is a curious and very beautiful little structure, a literal weaving together of the rushes, till they become a sort of cradle on the bosom of the water, in which the eggs are deposited. There is no nest-like snugness in its form, but it has a wild, aquatic air in perfect keeping with the nature and habits of water-fowl.

There is much beauty in water scenery, even though it should only consist of a small fish-pond or sedgy brook. The wild plants that decorate the banks are richly green, and their flowers often of brilliant colour. The mirror-like surface of the water beautifully reflects the trees and bushes that border it, and at night, when the moon is up—I dare not begin to talk about the glory of the scene then.

In our cool climate we cannot feel the real blessings of a well watered land. Beautiful as is a sparkling river or a glassy pool, we often turn away shivering from their banks, and only in summer heats admire their beauty in the landscape, or seek the cool air they breathe. But in the hot dry countries of the south and east, the beauty of lakes and streams, is their lowest recommendation. There, water is deeply valued and valuable, and in the glorious descriptions of the spiritual kingdom—so magnificently clothed by inspiration in earthly imagery, suited to earthly minds—water is conspicuously mentioned; it seems remarkably selected to express, by its presence or absence, the blessings or judgments of God. "They that forsake the Lord" are declared to be "as a garden that hath no water;" while the kingdom of Christ is described, among other remarkable figures, as "waters" breaking out "in the wilderness," "and streams in the desert;" and in the gospel, salvation is constantly and forcibly pourtrayed by the same beautiful and essential support of animal and vegetable life. What a striking and affecting picture, too, is presented to the heart of the Christian when his eye rests on "willows by the water courses!" Can we ever see one of these peaceful trees dipping its taper boughs in the cool stream without thinking of the peaceful resting-place of the people of God "beside the still waters."

Scorching heat and parching thirst are alike unknown to us as a nation, but the sight of this refreshing element even in winter should ever remind us of all that it so pointedly shadows forth. Let us remember the living water, which is promised to all who ask for it—that "Water of Life" offered to all who thirst. Have we sought and found *that* stream?

Among the few bright things that still gleam among winter scenery are the gracefully arching sprays of the ever-beautiful bramble, whose crimson leaves now, in some places, look like wreathes of glowing flowers. Hedge row and dell are gay with them, and they greatly tend to enliven the cold December scene. I have seen the large thorny stems of the bramble twining themselves, to a considerable height, round trees, with their beautiful leaves ornamenting the boughs, and hanging gracefully down, as if to display the elegance of their form and foliage; and, really, if we did not know they were brambles—if we could fancy ourselves in some newly discovered land—we should be struck with the appearance of so rich and luxuriant a creeper.

We are beginning, too, to value the heavy looking Scotch fir: ungraceful in its youth, but so truly picturesque in its advancing years. At every season, when old enough to be admired, it is a very ornamental tree for the park or pleasure-ground as well as for the woods. A group of old Scotch firs is a fine object; they are so stern, so rugged, so pictorial; and they stand so bluff and untroubled at our storms that they tell a marvellous tale of the blasts and buffettings of their northern birth-place. The foliage (if we may call it so) is dark and sombre, but it is valuable when other leaves are gone, and as a strong contrast during their existence. The summer shoots, indeed, give a lively dash of colouring to it while they are young and bright, but they soon merge in the dusky mass. There is a spiciness about a fir, and a peculiar dryness in the soil beneath its boughs that tempts us to sit down and enjoy a woodland scene—delightful at almost every season—for we hear the sheep-bell from the plain, or the startling rush of the wood-pigeon above our heads, and catch a glimpse of the blue distance through the trees, and all these sights and sounds are exquisite. Sometimes we meet with a lonely fir standing on a brow, among our southern woods, as if thinking of the bold grandeur of its native hills, and longing for the wild breezes that sweep the shores of Scotland. It tells us of the lofty mountains and narrow passes that have witnessed so many sad struggles, and echoed so many coronachs cried for the great and brave. It tells us tales of romantic interest, yet of terrible truth; and we must ever look with deep regard on this beautiful tree, because it connects us with that intellectual and industrious people who dwell so peacefully beside us, under the sway of Protestant kings. The union of two sister kingdoms, so close and perfect, is a source of blessing to both, and exemplifies the Psalmist's fervent exclamation, "Behold, how good and how pleasant it is for brethren to dwell together in unity." Let us all strive, in our different stations, to foster this blessed feeling in our homes, our villages, our cities; it will gladden and beautify our land, for brotherly love "is as the dew of Hermon, as the dew that descended on the mountains of Zion."

THE CRANBERRY.

This agreeable fruit may be easily cultivated. It grows naturally in low boggy places, or on wet moors amongst the bog moss. This moss, rising gradually up above the level of the water, forms, as the lower parts decay, a bed in which the cranberry flourishes and bears fruit abundantly. To cultivate it near home, we must imitate the situation in which it grows wild. To accomplish this, fix upon a situation near to a supply of water, then dig out the common soil four inches, and fill up the place with bog earth; raise up this peat six inches above the level; then form a trench round the bed, a foot or 16 inches wide, puddling it at the side next the common soil and at the bottom with clay. Keep this trench full of water. Plant the cranberry plants in the raised bed a foot apart every way; they will soon run over the whole surface, and bear plenty of fruit. The water should be frequently changed, or it will become foul. Should there be a small lake, or even a large one, near at hand, an excellent cranberry bed might be made near to the side. All that would be required would be to form a low flat island with a peat earth surface, the cranberry plant put in it at the proper distance, and kept clear from weeds. This might be named with propriety, "The Cranberry Island." A small extent would produce a large supply of fruit. If the island was eight yards long and four wide, it would be quite large enough to supply a moderate family. Lastly, this fruit may be grown in a bed of peat one foot deep, sunk an inch or two below the general surface, and during dry weather to be flooded with water occasionally. In this bed they will fruit to a middling extent. This last method is, however, not nearly so good as either of the former; it should only be adopted where the situation will not admit of either of the other being practised. The American cranberry, on account of its size, is the best to be cultivated.

T. Appleby.

HINTS ON MAKING SMALL HOTBEDS.

Digging out a trench one foot or fifteen inches deep, in high exposed situations, is very good, as the whole of the lower part of the hotbed is so much better protected from the piercing cold March winds; but in low situations a slight trench also may be made—say three or four inches below the common level of the surface; then make a good bottom with furze faggots, or any other garden trimmings, such as the prunings of gooseberry bushes. Let this bottom be one foot thick, at the least.

Of course almost every one is aware how convenient it is to have a good stable-yard to refer to for plenty of manure; but this stable manure requires to be well worked, as we gardeners call it, before it can be made up into a hotbed. It must be turned over three or four times, mixing the short with the long, or the wet with the dry, and if the whole heap appears too dry and husky give a good watering to the whole as it is being turned over, and shaken up together: this will set it to work, or fermenting. The repeated turning over and well-mixing is to sweeten and equalize the whole bulk. It should be nearly half-rotted before it is fit to make up into the hotbed. Let the materials be whatever they may be, it should be treated as above.

Two-thirds fresh horse-dung, one-third fresh cow or pig-dung, or leaves, well worked up together as above, are excellent materials for making hotbeds, giving out a gentle, suitable heat, and lasting longer than that from horse-dung alone. A good time to begin in a small way to prepare the materials is the last ten days in February, and you will then have the materials ready to make up the bed about the first week in March, which is a very good time for a beginner in a small way to plant out his pot of cucumber plants, or to sow his flower-seeds, or plant his cuttings. A bed to receive a frame four feet square might be made three feet high at the back, and two feet six inches in front. This will be found to give a very nice bottom heat, either for cucumbers, seeds, or cuttings. If for seeds, or cuttings only, the whole surface of the bed may be covered over, six inches thick, with either tanner's bark or sifted coal-ashes, to steady or plunge the pots in.

In making the bed give it plenty of labour. Work the fork well in shaking and mixing the materials together—beating them down with the back of the fork as the work goes on; but they should not be trodden. Whether the hotbed is made altogether above ground, or some part of it is sunk below the level surface, it may be cased round with any kind of materials; such stuff as long littery stable dung, dry straw, or refuse mouldy hay, are all excellent either for this purpose or for covering the frame. Such casings, placed neatly round the bed, keep out the cold winds, and may be continued up to within nine inches of the top of the frame. This hotbed, attended to in this way, is like a man made comfortable, and having a good flannel rug on to keep him so.

T. Weaver, *Gardener to the Warden of Winchester College.*

EXTRACTS FROM CORRESPONDENCE.

BRAMBLES FOR BEE-HIVE MAKING.—Your correspondent's question under this head is better answered in person, and practically, than in writing, and particularly the mode of *splitting* the bramble, which I fear he will not do without a teacher, or some practice. The brambles used are those fine long shoots of the last summer's growth. They are to be cut in the winter after the leaves are fallen, and, perhaps, after frost they will cleave the better. They are then first split in half (after trimming off the prickles), and each half again split in two; this is done with a small knife; a clasp-knife, or gardener's knife, will do very well. The knife is inserted at the largest end, and continually moved backward and forward on the edge, sideways, by which it progresses down the middle of the bramble; the regular motion keeping it from glancing out, or diverging to one side more than the other. This is done the second time, so as to split the bramble into four parts. The pith on one side, and the rind or bark on the other, is then scraped off (usually with the back of the knife, by being drawn under it when held firmly down on a piece of leather tied a little above the knee of the operator.) By this process the bramble is rendered thin and flexible, and is then fit for use; only if not used directly it will require to be laid a short time in water to make it supple before using.—T. MORGAN.

POULTRY.—I have found a very ready way of obtaining a good sort of poultry to be, to select some of the nicest silver pheasant hens of the neighbourhood without a particle of game blood in them. These should be crossed with a pure Dorking cock; and if his plumage corresponds to theirs, so much the better. I keep all the ten-toed pullets, and cross these again with another Dorking. There are so many points of resemblance between the two breeds that I suspect the one to be degenerated from the other; and there seems some reason to suppose that renewal is better than cross-breeding. Full-grown poultry bear exposure to cold and wet better than very young chickens. For these, shelter and warmth are absolutely needful; but many of my friends, who have begun at first with pure-bred Dorkings, direct from the poulterer, have found them to have too great delicacy of constitution. From their youth up, poultry, to be profitable, should be uniformly supplied with a due proportion of food; and this practice, followed out from generation to generation, produces that tendency to get rapidly into condition, which is the grand characteristic of the improved breeds of our domestic animals; and the descendant of a well-fed race will thus become, to a certain extent, the representative, in money value, of so much good food and good housing accumulated in his portly person. This tendency will only last a very few crosses under a worse treatment. I can hardly believe it to be wholly the result of race; but some kinds seem to have a much greater facility of acquiring it than others; the latter being generally a long neglected, but hardy, half wild stock. Whether there is any analogy to this view of matters in our own species—whether we are too much neglecting the laws of natural economy, in blindly following out the rules of political economy, in the scanty pittance doled out to half of our agricultural labourers at the idle time of the year—and whether a working man should not be kept in decent condition the year round, in order that he may be at once ready to go to work when required—are questions, perhaps, beside the subject of your pages, but, nevertheless, they will obtrude themselves in these days of fearful visitation. So much for breed and the principle of condition; now for the practice, which we have found very successful. First, we use plenty of cayenne with the food, as recommended by Cobbett; it is useful *before* and during the whole of moulting time, as also a free use of salt during the whole year. We also allow them, occasionally, bacon-rinds, and other scraps of salt meat. Three years' experience of this plan has proved that, instead of its causing the loss of feathers, it keeps the birds in very high feather and health. Fowls bought out of the market have been found unwilling to peck oats, or to drink pure water, until they have had a lump of salt given to them, which they have readily devoured, and then begun to both eat and drink with a good appetite. Secondly, we are in the habit, in winter, and in wet weather, of considering *all bottoms of bottles*, lees of port wine, of elderberry, and of all home-made wines, odd heel-taps of porter, ale, or spirit, as the perquisites of the poultry. These should never be thrown away; and, most happily, our butler does not object to these views. About a quarter of a pint of this stimulating compound, diluted with water, may be occasionally mixed with the food of a dozen fowls. Our poultry, also, peck all the bones, and come in for many scraps of meat and bits of fat, also any drops of milk. You must observe, that one meal in the day is composed of meat, milk, and fat, with some of the potent liquor above described, when it can be spared. A little meal is, also, added occasionally. Barley seems to answer better than any other grain whatever: the hens lay better, and are less liable to gorge themselves when fed with it than with oats. By this stimulating diet, in bad weather, we keep up a high breed of poultry, with very little shelter, or confinement, or extra attention, except to the young chickens.—V. V.

TO CORRESPONDENTS.

⁂ We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense; and we also request our coadjutors *under no circumstances* to reply to such private communications.

SEA-WEED (*W. M. H.*).—We have no special experience in employing sea-weed as a manure for raspberries, but we knew a garden near Southampton which produced abundant crops, and yet never had any other manure. We should fork it in between the rows now, and in a fresh state.

ERROR.—A most grievous mistake was made by the printer in inserting the Fruit Garden, at page 107, of our last number but one. The last seven lines of the first column should be inserted after the 30th line from the top of the second column.

HOT-BED MAKING (*C. P., Brixton*).—Some plain directions by Mr. Weaver in our present number will suit you.

DISEASED APPLE AND PEAR BARK (*W. J.*).—We have examined your specimens in vain for the scaly insect you mention. The barks, however, are beginning to be affected with canker, and we should think, from their appearance, that your soil is wet and requires draining. Draining will check the progress of disease, and even the prevalence of insects, for both are promoted by excessive moisture in the juices of the tree. Scrub the stems and main branches with soap-suds and urine.

ROSE-TREE STOCKS (*G. J. Bell*).—You may move them now from the hedge-rows where they are growing. The pumpkin seed you mention we find all abortive. Grimstone's Egyptian peas and Johnson's Wonderful Long Pod may now be obtained of the seedsmen.

BROCOLI LAID IN (*Zeta*).—Your strong-growing brocoli plants, laid in with their heads to the north, will raise them perpendicularly, and flower where you have placed them.

CARROTS TASTELESS (*Ibid*).—You say that these, "grown on a heavy soil, which had been previously trenched and limed in February, taken up a month ago, dried and stored away in ashes, are without the slightest flavour, and after being put into cold water and boiled for about four hours are still hard and unfit to eat. Is the lime, or want of manure, the cause? Putting them into boiling water has been tried, and with the same results." Your soil and deficiency of manure are the causes of this defect in your carrots. They never are so well-flavoured when grown in a heavy soil as they are in a rich, light soil, and their slower growth always tends to produce woody fibre and consequent hardness. Manure your plot now which you intend to sow with carrots in the spring. Give it a very heavy dressing of fine coal-ashes, mixed with fowl or pigeons' dung, and throw it up into ridges. In the spring trench it two spades deep, turning in a little rich manure of any kind *with the bottom spit only*.

Golden Chain Geranium (*C. E.*).—We do not know whether you can obtain this variety of the florists. Its leaves have a beautiful broad edging of yellow; its flowers are scarlet and small; it requires a very poor soil; one part sand, one part peat, and one part of very small pieces of soft brick, suit it best.

Sowing Grass (*Rev. H. S.*).—If the winter proves unusually mild, grass sown on a lawn even now, as recommended by Mr. Beaton at page 107, might be the best practice; and the loss of the seed, even if it failed, would not be much. But on newly enclosed and broken up ground, such as your old gooseberry plantation, we recommend you to defer sowing your grass-seed until February. Read again what Mr. Beaton says.

Roses (*A. T. B.*)—We would not advise cutting back to the bud, now, the roses budded last summer, and for this reason, that if mild weather ensued, the buds might be started into growth; and then, if a severe frost came, the labour of budding might be lost. We should prefer cutting back when the sap was fairly in motion in the spring. Those intended for pillars and walls treat in a similar manner. Dwarfs and standards prune either close or rather long afterwards, just as you prefer few but fine flowers, or large masses, though not individually large. Climbers for pillars, &c., should be managed differently; the older shoots should be cut out, and the new ones left for nearly their whole length: and, if the wood is well ripened, you will thus obtain a bunch of flowers from every bud.

Mulching Wall-trees (*Ibid*).—Do this now with good rotten manure, if your trees require strength; defer it until the commencement of summer if you merely wish to exclude the drought. Use then a little light litter, if your trees are strong enough; do the same now if your roots are near the surface, and you do not wish frost to reach them.

Tyro's question will be taken into consideration before long.

Elton Pine Strawberry (*Delta*).—You cannot succeed in cultivating this strawberry. "The plants die off just when the fruit is beginning to ripen; the leaves droop as if wanting rain, and in four-and-twenty hours the plant is dead, and turned perfectly brown. For five successive years this has been the case, the first instances always occurring about the time the fruit is beginning to ripen; and the plants continue to drop off in this way till the end of September or so. Young plants (this year's runners) and old ones seem alike affected. I fancy I have observed this disease, if I may so term it, to attack the plants in the worst form, on a hot sunny day after rain has fallen; but it continues through the summer, and in all weathers. It cannot be for want of moisture, for the plants die in wet weather as much almost as in dry. I have lost above half my plants this year, and for the last four years. I have examined scores of roots when first attacked, and can find no wire-worm or other insect likely to be the cause of injury. Two years since I removed the plants, or rather made a fresh bed, in another part of the garden, but they dropped off worse than ever. The locality is near a large sheet of water, and quite in a valley, liable to cold fogs, the soil cold and wet. In precisely the same locality, and adjoining the bed of Elton pines, the following succeed admirably—British Queen, Deptford pine, Prince Albert, Eliza, and Myatt's pine. The most remarkable thing is, I have never lost a single plant of any of these varieties from this complaint. I can only imagine that the climate will not suit the Eltons. Those plants of the Elton which escape, fruit as beautifully as can be wished. This is, in my opinion, the most remarkable part of the case, and makes me imagine it cannot be an insect that does the mischief; for if it were, why are not other sorts attacked in like manner?"—Are you assured that your Eltons are not devoured by a grub? We many years ago suffered much in this way, and our strawberries would die off at the precise period you name. There are two distinct grubs which attack the strawberry, eating the stem through just below the surface. The one is the well-known cockchafer grub; the other is a brown, tough, and leathery-looking creature. If not the grub, it is possible that your "cold and wet soil," together with your very damp atmosphere, may induce a disease in the stem known among gardeners as "shanking." We would clear away the soil round the stems, and drop some charred materials round them. It is plain the soil is not bad, for those which remain succeed well, as also other kinds. It is a puzzling case. We would thoroughly drain the garden.

Planting Wall Fruit-trees (*Stupid*).—You should have stated the character of your turf (of a lighter character than your soil, we hope). Your course seems judicious, but, unless your turf is very rich in fibre, some vegetable matter, or coarse manure, should have been mixed with it. We would rather dispense with the stones placed on the top: there is, at least, no occasion for them. Pinch your gross shoots in summer by all means. An explanation of the effects of pinching will be found in our back numbers.

Old Barren Pear-trees (*R. H.*).—If your pears are worth saving, commence tying or nailing down a regular series of young shoots, clothing the old stems with them, and removing totally all the most barren-looking old spurs, or portions of them, as may be deemed necessary. Make use of all that appear short-jointed in this way, and cut the others clean away, not even leaving the base for spurs. If your trees, however, are worn out, our advice is, plant fresh ones according to our advice about "Stations." Prune your *apricots* back to about one foot in the beginning of February.

Bulbocodium vernum (*A Country Vicar*).—It is soon for your specimens of this pretty little hardy spring bulb to be shooting at the end of November, but the fine weather in October and November will account for it. It is not over-particular as to soil, provided it is light—sandy peat or very light loam will suit it—and it grows as freely as a crocus; and, like the crocus and all our winter-growing hardy bulbs, requires very little water.

Cape Jasmine (*A Suffolk Clergyman's Wife*).—This may go for years without any pruning, but will not flower well without a little forcing in the spring, and not at all unless it is grown in peat, and kept clean from insects.

Ixia Seeds (*P. G.*).—We cannot say how long these will retain their vitality, but we have grown them from seeds three years old. The samples of peat you enclosed will do both for heaths and ixias.

Plants for S.W. Angle of Wall (*J. T. L.*).—We have known a ripe plant of *Habrothamnus fasciculatus* endure 7° of frost without protection, and we have no doubt but it might be grown as a half-hardy plant against a wall, with plenty of winter covering, but a south aspect is not good to flower it on, as the sun is too much for the flowers; plant it on the west aspect of the angle, and the *large blue Clematis* will do on the south part.

Weigela Rosea (*Ibid*).—This will easily transplant, any mild day from October to March—the sooner the better.

Yellow Banksian Rose (*Ibid*).—This will not do as a pillar-rose in the open ground, unless the situation is very favourable, in the southern counties.

Shrubs for North Border (*Carrig Cathol*).—Your north border would make a capital bed for a good selection of rhododendrons, which would require less peat there than in a more open place. The common laurels we would endeavour to get rid of by degrees, and substitute such hardy climbing roses as are nearly evergreen; they would take up no room from the border, would soon cover the wall, and their roots would run under the rhododendron bed, and the whole would make a rich group from the windows. The following roses will best suit you:—Princesse Louise, Princesse Marie, Felicite Perpetuelle, Myrianthes, and Rampant. Half a dozen of the Gloire de Rosamene rose planted between these, to keep the bottom full, would flower all the autumn and look most splendid, although nearly a single rose. We hope Mr. Beaton will not lose sight of this brilliant flower-garden plant.

Dorking Fowls.—Parties requiring these may apply to Mr. H. W. Harris, not a dealer, residing at 14, Florence Road, New Cross Road, London.

Rylott's Flower-ball Potato (*R. P., Montgomery*).—Write to Mr. Turner, Neepsend, Sheffield.

Weeping Willows (*T. M. W.*)—There will be no difficulty in removing this. You may remove it at once, without any precaution for preventing its deep rooting.

Watering Bulbs in Moss (*A Hampshire Curate*).—Keep the moss not merely damp but wet, by giving water to it every day, growing, as they do, in a room where there is a fire constantly. Sphagnum from a wet peat soil will do for this purpose as well as moss from woods, but it will require less water. It is essential to have a hole at the bottom of the pot in which you cultivate your bulbs in moss.

Climbing Roses (*C. Jacomb*).—Unfortunately there are no such plants as you want—perpetual flowering climbing roses. Noisettes are the nearest to what you require, but they are too much alike to suit you in contrasted groups. Let us know where you intend to plant them, and the space each will have to cover, and we shall make the best selection we can for you with pleasure.

Camellia Propagating (*Constant Reader*).—To propagate from your large Camellias, you must buy small single ones, or stocks, to graft or inarch them on next season. The process, and proper time to perform it, may be seen by refering to our index.

Araucaria Cunninghamii (*Ibid*)—The two araucarias in pots will not stand the winter in the open garden. A strong plant of the *A. Cunninghamii*, planted out in the spring in light soil, and protected for two or three winters, would stand an ordinary winter; but the soil about Willesden, in Middlesex, is altogether too heavy for them.

Arbor Vitæ turned Brown (*Subscriber*).—Thousands of shrubs and trees planted last spring look as poorly as your arbor vitæ, owing to the very cold weather up to near midsummer, which was succeeded by six weeks of tropical heat and excessive dryness in the air. If it is still green, or if half the green parts remain, it will recover, and do well in another season or two. Did you mulch it thickly, and give it water twice a week during the dry weather?

Bees (*T. Marcer*).—Last May you opened a hole, half an inch wide, in the top of a common hive, and put over it a new hive, with an entrance cut in it, and stopped up the entrance in the old hive! No wonder that this made a commotion among the bees, and that they swarmed. You fumigated them, and in August put the bees of the old stock into one of Mr. Payne's hives; and no wonder that they soon were flying about in all directions, that many perished, and that now they are found not to have collected much honey. You had better purchase another colony of bees, and manage them as Mr. Payne has directed in his monthy calendar. You may feed yours as therein directed, but there is very little chance of their surviving the winter with all the pains you can take. The half-inch hole at the top of your hive was not large enough. Bees will always swarm rather than work upward through so small an aperture. It should have been *four inches* in diameter. Fumigating and cutting up the hive has been its ruin. Read the calendar for May, page 42, vol. 2, of The Cottage Gardener. Had the aperture in your hive been four inches wide, and had there been no "door" cut in the hive you placed upon it, nor the door of the stock stopped up, your upper hive would soon have been filled with honey, provided it would not hold more than from 10lbs. to 15lbs. of honey.

Names of Plants (*Lucubratory*).—Your specimen is *Sedum glaucum*. (*W. Savage.*)—We think a *Statice*, but cannot tell until it blooms.

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WEEKLY CALENDAR.

M D	W D	DECEMBER 20—26, 1849.	Weather near London in 1848.			Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
20	TH	Long-tailed Pocher comes. [mences.	T. 40°—24°.	N.E.	Fine.	6 a. 8	50 a. 3	9 46	6	2 3	354
21	F	ST. THOMAS. Shrtst.D. Wint.Qr. com-	T. 34°—23°.	E.	Fine.	6	51	10 52	7	1 33	355
22	S	Sun's declin.23°27's. Wild Swan comes.	T. 39°—22°.	E.	Fine.	7	51	morn.	☽	1 3	356
23	SUN	4 S. IN ADVENT. Daisy flowers (White).	T. 33°—21°.	E.	Fine.	7	52	0 1	9	0 33	357
24	M	White Nun comes.	T. 40°—26°.	E.	Rain.	8	52	1 12	10	0 3	358
25	TU	CHRISTMAS DAY. Chaffinches in flocks.	T. 49°—35°.	N.E.	Fine.	8	53	2 26	11	0 27	359
26	W	ST. STEPHEN. Scaup Duck comes.	T. 51°—40°.	S.	Fine.	8	54	3 42	12	0 57	360

ST. THOMAS, the apostle, we may consider was a twin, for that name in the Greek, and *Didymus*, his name in the Syriac, each bear that interpretation; but we know little more of his personal history from the Scriptures beyond those facts recorded in the 11th and 20th chapters of St. John's Gospel, testifying to the energy of his character. This energy sustained him in journeyings among the most idolatrous of nations—the Bactrians, Ethiopians, and Hindoos, by the last-named of which he was murdered, A.D. 73. The instrument of his martyrdom was a lance, and the place of his death Meliapore, on the western shore of India. His body is believed to have been there interred, as recorded by Marco Polo, who visited the place in 1269; and the researches of the Rev. Claudius Buchanan, Bishop Heber, and others, demonstrate the existence of Christian churches in that region, who trace their foundation to this apostle. The earliest evidence we have of the existence of these churches is to be found in our Chroniclers, who give a general testimony that Alfred the Great sent an embassy to India to visit the shrine of St. Thomas. William of Malmsbury says, "He (Alfred) sent many presents over sea to Rome, and to St. Thomas in India." Sigelm, bishop of Sherbourne, sent as ambassador for this purpose, penetrated successfully into India, which even now is a subject for wonder. Returning thence, he brought back many foreign gems and aromatic liquids, the produce of that country." This was at the close of the 9th century, different years being stated, varying from 883 to 893.

This, *the shortest day*, or middle of the Winter Solstice, is only 7 hours, 44 minutes, and 17 seconds long. It has, consequently, the longest night. It was by the periods of darkness that our Saxon forefathers measured their time, and we still retain this mode in such words as *fortnight* and *se'ennight*, which are abbreviations of fourteen nights and seven nights. This longest night was held in great veneration, and was called *the Mother Night*, the year being considered to issue from it, and that it was the parent of all those days and nights which followed until the anniversary again came round.

CHRISTMAS DAY has once more arrived, and again say we heartily —may it be a joyous one to all our friends—aye, and to all our enemies too; for we would not willingly know of a sad heart in this season "of great joy" provided for man by God. If ever we can be at peace and in charity with all men, it is on this day; and we would not have even a ceremony omitted which our fathers cherished to make "a cheerful countenance," and symbolical of the seasonably glad heart.

Come bring, with a noise,
My merry, merry boys,
  The Christmas log to the firing;
While my good dame, she
Bids ye all be free,
  And drink to your heart's desiring.

With the last year's brand
Tight the new log, and,
  For good success in his spending,
On your psalteries play,
That blessings may
  Come while the log is a teending.

Drink now the strong beer,
Cut the white loaf here,
  The while the meat is a shredding
Tor the rare mince-pie,
And the plums stand by
  To fill the paste that's a kneading.

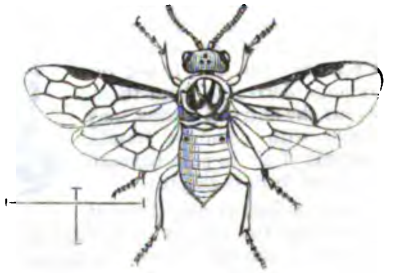
METEOROLOGY OF THE WEEK.—The average highest temperature during this week, from the results of the last twenty-two years' observations, is 43.9°, and the average lowest temperature 25.7°. The greatest heat during the same periods was on the 25th in 1827, when the thermometer indicated 58°; and the greatest cold was on the 24th in 1830, when the mercury fell to 10°. During the 154 days of this week in the 22 years, rain fell on 59 only, and 94 were fair. The great frosts of 1794 and 1829 commenced on the 23rd, and the great frosts of 1739 and 1819 on the 24th, of this month. In 1564 the Thames was covered with ice on the 21st, and for ten days after.

NATURAL PHENOMENA INDICATIVE OF WEATHER.—*Fleeces*, or clouds like fleeces of wool, intimate that rain is forming; and *Mares Tails*, or Curl-clouds, looking like distended locks of hair, similarly foretell the approach of wind. Aratus, Virgil, and Pliny, all speak of these fleecy clouds portending bad weather. *Insects*, whether flies or gnats, whether those which persecute man or animals, always are most troublesome, and most desirous of feeding on their blood, both before and during the intervals of wet weather. Why this occurs we can no more explain than why fish at such times are similarly voracious.

RANGE OF BAROMETER—RAIN IN INCHES.

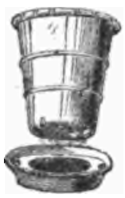
DEC.		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
20	B.	29.414	30.397	30.399	30.288	29.019	29.765	29.675	30.301
		29.218	30.312	30.297	30.260	28.785	29.655	29.667	30.172
	R.	—	0.01	—	—	0.03	0.07	—	—
21	B.	29.676	30.268	30.404	30.462	29.798	29.190	29.619	30.384
		29.599	30.234	30.346	30.295	29.421	29.001	29.579	30.315
	R.	—	0.01	—	—	0.10	0.11	—	—
22	B.	29.851	30.164	30.400	30.289	29.618	29.125	29.948	30.345
		29.780	29.853	30.306	30.176	28.983	29.011	29.732	30.211
	R.	0.02	0.05	—	—	0.20	0.37	—	—
23	B.	29.854	29.614	30.364	30.238	29.719	29.024	29.910	30.343
		29.793	29.551	30.355	30.095	29.081	28.620	29.658	30.204
	R.	0.06	0.09	0.01	—	0.01	0.10	0.05	—
24	B.	30.016	29.794	30.483	30.270	30.211	29.232	30.045	30.093
		29.902	29.651	30.416	30.245	30.042	29.159	29.786	29.706
	R.	0.12	—	—	—	—	0.04	—	0.02
25	B.	29.769	29.815	30.466	30.260	30.264	30.037	30.185	30.046
		29.657	29.659	30.396	30.104	30.176	29.593	30.148	29.836
	R.	0.06	—	0.01	—	0.01	—	—	—
26	B.	29.944	29.548	30.370	30.116	30.076	30.247	30.190	30.024
		29.755	29.141	30.336	30.072	29.870	30.228	30.141	29.975
	R.	0.01	0.20	—	—	—	—	0.01	—

INSECTS.—The Nigger or Black grub sometimes destroys thousands of acres of our turnips. Its body is cylindrical, as thick as a crow-quill, about half an inch long, greenish black, with a darker line down the back; then a line of dull yellowish grey, and a third of dark slate. Underneath the body is paler; it is wrinkled, and the head is black. When alarmed, this grub curls itself together in a somewhat spiral form. They feed on the leaf of the turnip, leaving nothing but its largest ribs, from the middle of August until about the same period of October. They never attack the Swedish turnip. When full-grown the grubs bury themselves just below the surface of the earth, each forming a small oval cocoon of earth formed into a paste with a gummy moisture from its mouth. It remains in the chrysalis state until July, when the perfect insect, or Turnip Saw-fly, comes forth. Our drawing represents it magnified, the natural size being shewn by the crossed lines. It is the *Athalia centifoliæ* of some, and *A. spinarum* of other naturalists. Its colour is bright orange, head black, upper lip pale yellow, antennæ black, thorax has two large dark spots, and other dark marks are about the body and wings. On small plots of turnips the Black grub may be easily removed by hand-picking, and from larger breadths by turning upon them some broods of ducks.



Pursuing our observations upon Flower-pots, we we will next observe, that gardeners are very far from unanimous in their opinion as to the material of which they are made most beneficially. Some of them, perhaps a majority, go the length of declaring that they are best made of clay, burnt lightly, and consequently very porous; and there can be no doubt that this material has three powerful effects—it drains the soil in the pot rapidly, tends to reduce its temperature, and the burnt clay of its sides is grateful to the young roots, for these, almost universally, delight to attach themselves to, and to ramify over, its surface. Highly glazed, hard-burnt, slate, and painted pots have these effects all more or less diminished; and to avoid one of the disadvantages—draining, or drying, too rapidly—more than one form of pot will be mentioned presently. Many practical men are vociferously in favour of particular forms and materials; and one, in a letter now before us, goes the length of saying, that " no gardener can grow in any other pot a plant so well as it can be grown in one that is more or less porous." Now, this is a very great mistake; for, although one kind of pot may require more attention to the plant grown in it than a specimen grown in a pot made of some other material, yet with that extra care they will flourish equally. For instance, we have seen geraniums grown, almost side by side, in common pots, in slate troughs, in wooden boxes, and in cast-iron vases, and we could see no disparity in their vigour and beauty. Again, we know that Mr. Beaton—one of the best cultivators of these flowers—grows them, and has done so for a long time, in zinc pans. The more porous the material, the more frequent and abundant must be the watering; and the better conductor of heat the material may be—such as iron or zinc—the more attention is necessary to keep the roots from being either over-heated or excessively chilled. So that we verily believe, that almost every material of which a flower-pot can be made has some especial merit and disadvantage; but, at present, we are not in possession of comparative experiments sufficiently comprehensive to enable us to give a decided opinion in favour of any. The following have been employed to avoid various inconveniences attendant upon flower-pots of the usual form:—

Fig. 1.



To facilitate draining, and yet to retain the tidiness secured by the saucer, Mr. Hunt has had flower-pots made with elevations, on which the pots are placed. But this is not the only advantage derivable from them. They prevent the entry of worms, may be employed with common stands, allow a current of air to pass beneath them, and their form is elegant.

Mr. Brown (2) has proposed a pot with hollow sides, the vacuity to be filled with water through a hole in the rim, or left empty, as occasion requires. The water, he considers, will prevent the plants suffering from want of moisture; and when empty, the roots will be preserved from being killed by evaporation. But surely applying the water to the sides will be an extra inducement for the roots to gather there, an effect most desirable to avoid, and wetting the outsides of the pot is a very doubtful mode of preventing the reduction of temperature.

Fig. 2.

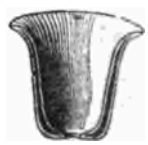
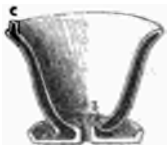
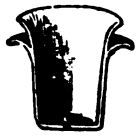


Fig. 3.



Saul's Fountain Flower-pot (3) seems open to the same objections, with the additional disadvantages of not being easily drained, and being more expensive and cumbersome. The water is also forced in at the bottom of the pot, contrary to the course of nature in applying moisture to plants. " An outer basin is made on the bottom of the pot, to which the water enters at *a*, and is carried round the pot in the basin, there being two or three holes through the pot's bottom, *b b b*. By these means the water is drawn up from the basin by the roots of the plants (!), or, if it should be desirable to prevent it from being drawn up, the exterior orifices of the holes, which open into the basin or saucer, may be closed (!). The fountain is supplied with water by taking out the stopper *c*, the entrance into the basin at *a* being at that moment closed; and as soon as the water runs over at *c*, the cork or stopper is put in, and the stopper at *a* removed."—*Gard. Mag.*, March, 1843, 136.

Fig. 4.



Mr. Stephens's flower-pot (4) is intended to supply water to the plant where it is most wanted, and to protect it at the same time from slugs and other creeping insects, which will not pass over the water between the two rims.

Mr. Rendle, the intelligent proprietor of the Plymouth Nursery, proposed to improve the drainage of pots by elevating and piercing their bottoms. This, and Mr. Brown's, suggested to us that of which Fig. 5 is a section. It is merely two pots, one fitting within another, having its bottom indented and pierced as proposed by Mr. Rendle, but not touching the outer pot by half an inch all round. This is a most effectual form to secure drainage, and to prevent the evaporation from the sides of the inner pot, the intervening stratum of confined air being a bad conductor of heat. It has the merit, too, of cheapness.

Fig. 5.

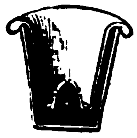
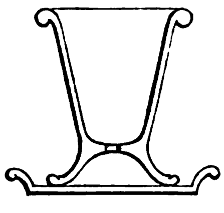
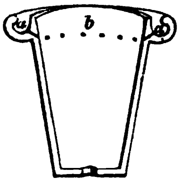


Fig. 6.



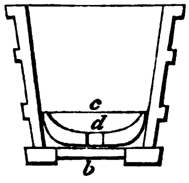
Another pot (6), adopted by T. C. Palmer, Esq., of Bromley, Kent, has been found by him to have the advantages that it induced worms to pass out, yet prevented their return; was very effectual to keep out ants, slugs, &c., as it stood in a saucer of water without any excess of moisture reaching the soil; and from this quality might be particularly suitable for heaths.

Fig. 7.



One of the inconveniences attendant upon pot-culture is the hardening of the surface soil by watering. This may be obviated by having the rim of the pot (7) encompassed by a gutter, *a*, *a*, communicating to the earth within the pot by numerous perforations, *b*. Water poured into the gutter would thus gently percolate away into the earth.

Fig. 8.



The last flower-pot (8) we shall describe is one that is very useful for facilitating the shifting of specimens in large pots. It was patented, we believe, by Mr. G. Fry, gardener at Lee Park, and named by him the "West Kent Garden Pot." The drawing represents a section of it. The pot is without a bottom, the orifice *b* extending across its entire diameter, except a narrow ledge all round, on which rests the false bottom, *c*, perforated as usual with the drainage hole, *d*. The principal advantage of this form is that at shifting time, a block of wood of the size of the orifice *b* being pressed up, it moves the ball of earth bodily, thus disturbing the roots as little as possible.—*Johnson's Gardener's Almanac.*

We have been favoured with the following from a vicarage near Bridgewater:—

"Having seen in the Cottage Gardener that it is recommended to cut down dahlias, as soon as touched by the frost, to within four or five inches of the ground, and then lightly to cover with coal-ashes or turf-dust, I followed the plan; and in a subsequent paper it is said that the roots might be left out in the ground in the winter without injury. I therefore intend to try it for this winter, and mean to cover them up a little more thickly before cold weather, as we often find it difficult to get leisure to put them in at the right time. In the last paper but one I see, among the answers to correspondents, that some one has stated, that their dahlias, cut down as you recommended, send out young shoots from the stems, or ask if they will not do so; and you, in reply, state it is not probable that they would shoot out. I therefore thought I would send a line, to let you know that nearly all my dahlias are sending out young shoots from the short stems since they were cut down."

Our correspondent misremembered what we said at p. 57, for we there recommended a part of the stems of the dahlias to be left, and the tubers to remain in the ground to ripen; and one of the reasons for so doing is here exemplified. Had the stems been cut close down last October, the tubers during such mild weather might break into growth; but they never will do so as long as there is a joint or two alive above them.

THE FRUIT-GARDEN.

Planting Fruit Trees on Stations.—Many a time have we pointed to the benefits to be derived from planting fruit trees (under a dwarfing system) on prepared soils, severely limited both in regard of depth and extension. This mode of planting, or rather the benefit accruing from its adoption, was, we believe, first systematised or made public by ourselves, under the title of "Station Planting." We hope it will not be deemed egotistic to lay claim to this much. We shall, however, respectfully give place to any one who can invalidate our claims, and establish one more genuine in its stead. Be this as it may, it is a fitting subject for the present period, and we may at once proceed.

In former days our fruit catalogues were not so overcharged as at the present period, at least in the pear way, the great improvement in which, through our great Flemish breeders, has induced hundreds, nay thousands, of small gardeners or amateurs to indulge in the luxury of a melting winter and spring pear, whose dessert, in former days, scarcely extended beyond the bounds of the apple. As soon as the rage for these desirable pears prevailed, it became manifest, from the contradictory accounts which came to hand, that a variety of aspects would be requisite, and that many of the best of them would deserve and require a station on the wall, at least in our more northern counties. Subsequent practice has proved that a judicious selection of stocks, together with shallow planting, and a perfect control over the amount of root action in every respect, quite alters the character of the pear, as well as of most other fruits; causing the wood to become much more solidified or ripened, and more short-jointed; and this much accomplished, earlier, and more perfectly-ripened, fruit must follow as a matter of course. Here, then, we have the means of escape from a dilemma; for, could nothing of the kind be effected, peach culture on our walls must have given way, or otherwise the finer Flemish pears must, in a great degree, have gone out of cultivation.

Now, pruning (winter pruning) could by no means have accomplished these things; herein were gardeners, and even so-called scientific men of former days, completely baffled. Hence, also, arose such a fuss about modes of pruning, some fifteen or twenty years since; when, as before observed, the pressure or demand for situations on walls for our improved pears led many persons to imagine that a spruce system of pruning would, by admitting more sunlight, enable them to grow such fruits as dwarf or trained espaliers. And so it would have done, but they were following a kind of "will-o'-the-wisp." The powerful root action of such trees, uncontrolled, smothered their embryo blossom buds annually, at the very period when the reverse was requisite, and when it became particularly desirable that trees thus circumstanced should have been so established that the ordinary disbudding (always necessary in June), should of itself have guaranteed the necessary conditions of light, &c., until August. Thus, then, stood the case; and this brings us to the elucidation of our text, "Stations."

We have before, in The Cottage Gardener, alluded to the economic bearing of station-making when a new garden has to be enclosed, and what is termed a *collection* of fruit trees planted. We have known many cases, within the last thirty years, in which it was deemed necessary, in "making a garden," where "no expense was to be spared," to trench the whole plot over, perhaps some three or four feet deep; and to remove not only ordinary subsoil, but even much of the soil of the locality, although peradventure no particular accusation existed against it. Indeed, in the case of a rich proprietor taking his first steps in gardening, of course something of an extra character must be carried out—something out of the beaten track. Well, then, some old pasture must be robbed to fill the gap, and thus matters were too often carried out; the proprietor finding, after a few years, that gardening was a very expensive affair, and that success must rather be sought in first principles, and a correct appreciation of them, than in unwarrantable outlays of money. Let us not be understood here as repudiating the use of turfy or rested soils, rich in organic materials: by no means. We merely protest against a profligate waste of such things, especially when tender fruit trees, such as our Flemish pears, are to be made companions of the celery trench, the cauliflower, and other gross-feeding vegetables, which may be considered the swine of the horticulturist.

Soils.—We think it necessary, before detailing "station making," to indulge in a few remarks on the soils, or, as some term them, composts adapted to fruit-tree culture. Almost every possessor of a garden has heard of "loam;" not every one, however, has a distinct idea of what constitutes a loam. In its application to gardening purposes, then, loam means neither more nor less than an admixture of clay with sand. Other matters there may be, and are, but the proportions in which these two main ingredients are combined determines, in gardening matters in general, its aptitude for certain purposes. Hence we hear of "a sandy loam," "a clayey loam," "a stiff loam," "a free loam," &c. It is very lamentable to think that such ill-defined terms have crept into gardening matters in so stealthy a way. Other professions, however, have their technicalities; and as we are all—as our witty political writers say—in a transition state (which state has been some centuries pending), we may as well make the best of it, and grope our way as well as we can. We cannot here advert to *all* the characters of "loam," as to their bearing on pot plants, pines, melons, &c., and neither is it necessary. Our excellent coadjutors, Messrs. Beaton and Fish, will no doubt show its bearings on the floral kingdom in due time; in the meanwhile let us consider its bearing on fruit-trees. Now, we must candidly confess that, after an experience of some thirty years at the least, we would undertake to cultivate all the fruits at present known, with but three ingredients in the compost. Such should be, a loam of a proper texture (that is to say, exactly intermediate with a stiff loam and a sandy loam), more or less of the ordinary soil of the locality, and some half rotten vegetable manure. In making stations, then, the first thing—after determining the proper site for the tree, or trees—is to excavate the whole of the soil, or subsoil, to a given depth, and of a given area. Six feet square, duly prepared, will suffice for any fruit-tree at present cultivated; that is to say, under a dwarfing system adapted to small gardeners. Indeed, we plant many of our fruit-trees, which we know as not of difficult culture, on stations of little more than four feet square. In this, as in other matters, common sense alone may dictate. If the tree is required to attain some size, or to rise somewhat into the character of a standard, a broader basis must be allowed; if, on the contrary, "much within a small space" is the motto, why then limitation must be proportionately severe. Next as to depth: like draining affairs, we should be sorry to fetter the operator with one depth alone for all soils, and in all situations. We are scarcely dogmatical enough to attempt to lay down "cut and dried" rules on this point. Nevertheless, we may be permitted to record our practice, carried out principally on a free soil, with a substratum, in the main, of red sand. We make no distinction in this case between wall-trees and pears, &c., under a dwarfing system; not because some trifling difference might not be practised with perhaps a slight advantage, but for the sake of simplification. So much mystery and nicety of operation has hitherto oppressed the fruit question, that we are willing to compound for any amount of non-essentials, in order to make the way plain, and to introduce a system of economy. As we have no bottom waters, of any signification, to contend with, we are satisfied to have the principal volume of the soil (prepared as a "station" for the three) *below* the ground level. We, therefore, excavate about two feet, and in filling up again we throw about four or five inches of broken bricks or stone in the bottom, supposing it to be tolerably sound and dry; and on that we strew some riddled cinders, from which the portion fit for burning and the mere dust have been rejected. Material of this character being angular, falls into, and wedges, every crevice; besides which, its imperishable character guarantees durability. The next thing we do is to spread a layer of tree leaves—recently fallen, if possible—or, in lieu of this, new straw of any kind, or even heather, or fern if at hand, would answer well. This material decays slowly, and does not become too absorbent suddenly. The fibres descend and mat themselves horizontally through it in all directions, and thus have little inducement to penetrate the cinders and bricks, or stones; and this stratum eventually proves a decoy, and a source of fertilising properties. As for soil, all depends on the native staple. If this is too light and hungry, a little clayey or stiff loam must be obtained. If too adhesive, some free, upland, sandy soil should be sought to blend with it. In all cases, whatever is introduced should contain much organic matter; that is to say, soils containing much vegetable fibre, whether of root or leaf; and thus it is that so many old pastures have been robbed to make *borders*, as they are termed. If such valuable material cannot be obtained, means should be taken to introduce, in a regular way, leaves, straw, &c., as the filling proceeds. In making our stations, we seldom introduce more than some six or eight barrows of new soil; the amount, however, depends on the richness of the native staple.

R. Errington.

THE FLOWER-GARDEN.

The Roots of Trees and Shrubs.—About thirty or five and thirty years since, the late Sir W. Middleton had two very large old holly trees removed from a distant estate, and had them planted here near the mansion; but, before they had time to recover, the present possessor—my worthy employer—had the grounds about the house much altered, and it so happened, as we often see in other cases, that these large hollies were just planted in the wrong place; but there they were, and they must take their chance; and they did take their chance, sure enough, for their stems were buried nearly four feet, and for the next sixteen years they neither advanced nor looked the worse; and when I first saw them, ten years back, they looked as if they had been removed two or three years before; and when I learned their history I longed for an opportunity of trying an experiment with them, but I had too many irons in the fire then to set about them immediately, and it was the winter of

1843 before their turn came, and when we did begin we had no idea how deep they were buried, but we soon came to brickbats, and at last reached down to the roots, and now one could almost see what passed between the mind of the person, or persons, who conducted the operation nearly 20 years since. He was evidently an Æolian planter, and, like all planters who are disciples of Æolus, he believed if he could so arrange as to prepare means for a current of wind to reach the roots all should go on prosperously enough; therefore, his first preparation was to place a large cone of brickbats and the like all over the roots, and to carry a continuation of this up to very near the surface, resting the larger pieces against the body of the tree, and then covering the whole with such common soil as happened to be at hand. Now, there can be little doubt but a large portion of the rains which fell on these trees passed down to the roots, and the porous materials were sufficient to drain the surrounding soil for a considerable distance all round, and by that means collected a large supply of water for the roots also; but there was no danger about any of this water getting stagnant about the roots, owing to the subsoil and situation. Therefore, we may reasonably conclude that these trees did not want for air or water in abundance, and yet they stood still for nearly 20 years; but, if they had been reared on the spot, and were in health at the time of altering the ground, and all these pains had been taken to ensure their safety, there is little doubt but the fact would afterwards be pointed to as of immense service; in fact, that this saved the lives of those beautiful trees; and, if you or I had a similar case in hand this winter, some such plan would probably be recommended to us as a safe experiment; but, in truth, it is very much worse than useless. I once knew a fine tree of the common hawthorn that had to be buried nine feet, and a walnut tree close by it, but a little higher up on a bank, that was covered up the stem seven feet, owing to alterations made in the slope of the ground; both these trees look as well as if nothing had been done to them, but then they were established when the ground was altered. I also recollect having had a stone quarry opened in a plantation of mixed trees, and there was a depth of four feet of loose gravel soil to be removed before we got down to the stone. This was wheeled out, and made into a high circular bank among the trees, and after six years the stone quarry was filled up with this bank of earth. During those six years, every one of the trees thus buried made roots into the fresh earth from their naked boles—not all the way up from the original surface, but in a ring just a little below the surface of the new earth; and some of the trees were sensibly thicker above this tier of roots than lower down; and there were more than a dozen of larch trees in this way—the very last tree in the country one could believe would root at all from its naked trunk.

The lesson which these facts teach us is obvious. If trees are, or must be, covered up to a certain depth, owing to buildings, or alterations to be done in their neighbourhood, it is much the safest way to pile up the soil against the trees at once; for, if the depth will ultimately kill them, no mode of trying to prevent it by brickwork will succeed. The two holly trees which we relieved in 1843 have since made a very promising growth. We opened a hole all round each of them down to the very roots, and about a yard from the trunk, so that the tree stood in the centre of a six feet opening; a large quantity of leaf mould and sand, in equal proportions, was worked in among the roots, and up to a foot above them, and the rest was filled in with good mould and then turfed over. This winter we shall open a trench two feet wide just outside this ring of good earth, and probably the roots will meet us half way down, at any rate we shall dig deeply enough to reach them, but no deeper, unless they meet us very near the surface: this outer trench will be filled up with good soil, both to feed the tree and to encourage the roots to spread laterally and near to the surface.

Now, I can hardly think it possible for any of our readers to have a tree or bush in their gardens in a more hopeless case than those holly trees were in for many years; but they are now cured more surely than Mr. Holloway ever cured a bad leg; and I believe nine-tenths of the stunted plants one sees in garden grounds may be brought round in the same way. The worst cases I ever met with were trees which were originally turned out, or planted, from small pots without spreading out the roots. When that is not done, the large roots near the surface still keep the coiled position they necessarily assumed in the pot, and act on the balance of the tree like a corkscrew, upheaving it out of the ground as they increase in size, till, by-and by, it must either be propped up, or laid heels upwards some windy night. The only way to get over a case of this sort is to bare down to the coiled parts of the roots, and with a mallet and a pruning chisel cut through one or more of the coils near the collar of the root, and then filling in a sandy compost to facilitate the formation of new roots from the cut parts, and afterwards to lay in more good soil not far from the surface, to enable the new roots to extend rapidly, and take a firm hold of the ground; of course, all the coiled roots must not be cut at one time, for fear of killing the tree. The best way is to do the work one-third at a time, so that in three or four years the whole are released. There are few gardens of any extent in the country, that have been planted from 20 to 30 years back, which cannot furnish sad specimens of the effects of turning little plants out of small pots without shaking the soil away, and training out the roots in straight lines, as they ought to be. Another bad symptom is, when you see a fine, full-grown evergreen beginning to lose the leaves at the top. The cause of this is very easy to find out; the extreme roots are in the same predicament under the soil as the top branches are above; they thus sympathise with each other, just as a headache proceeds from a disordered stomach in our own experience: and the best cure is to work down to the roots, and if some are found to pass into a bad subsoil work them out, or, if that is difficult, cut them and place some good compost against them, working it out sideways to entice them, or new roots from them, nearer the surface. The next division is that were you see plants —that is, ornamental trees, shrubs, climbers, &c.— looking tolerably well as a whole, but still not quite up to your mind. It will not do, now-a-days, to have these things passable; better grow only half the quantity, and attend to them properly. In large gardens a heap of compost is generally formed, from various refuse, purposely for assisting plants the moment they show any signs of getting languid, and this work is entrusted to the most intelligent of the garden men, who is allowed some more hands to assist him, and next summer, when beds and pot plants are being watered, he sees that his patients are not neglected. Where such operations are carried on systematically—and without a system we may almost as well lie in bed—plants or trees that are placed out separately to form handsome specimens need not—indeed, should not—be placed in large pits in the first instance. It answers better to open the ground, every third or fourth year, outside the roots, and place a ring of good soil for them. When that is being done it is an easy matter to adjust the roots so that they make the best of the new soil; such as are naked, or getting too woody, ought to be cut back considerably, so as to produce a lot of young active mouths, and some rare species may be thus increased by making *cuttings of such roots*, or, what is preferable, when a long root is cut to keep it within proper bounds, the cut-off end may be drawn up so as to have a few inches of it exposed above the surface; and any root that will grow at all will have a better chance of doing so in that position than in any other way, as the whole length of its extreme end is still fixed in its original position. In all cases were additional good soil is given to plants growing surrounded by grass it will be right to place a couple of inches of the poorest soil on the surface for a bed to the turf, because without this the grass on the new relaid turf over the good earth would grow rank and greener than the surrounding surface, forming a "fairy ring;" and all this work should be got over before the sap begins to move in the spring. Old honeysuckles, clematis, climbing roses out of health, tree pœonies, magnolias in dry places, new pinuses, and indeed all new and old trees, ought to be seen to and helped whenever a symptom of stand-still is manifest.

D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

Protecting Plants, Watering, &c.—Last week, among other matters, we directed attention to the importance of keeping green-house and window plants in cold pits comparatively cool and dry during the winter. This dryness, or withholding of water, will depend considerably as to whether the plants in pots are set upon a stage, on wood-shelves, or upon the ground, or floor of the pit. If upon the shelves, more water will be necessary, as the plants will be unable to absorb much moisture from the medium upon which the pots are placed. But even then nothing like an indiscriminate use of the watering-pot should be resorted to. The plants, or pots, of cuttings that seem unable to supply the means of evaporation from their foliage should be carefully singled out, and just receive as much water as would thoroughly reach all the roots, but not so much as would run over or through the pots, and thus deluge the floor of the pits, as the drier it can be kept the better. Where only a few plants want watering, and the collection is not large, it is advisable to lift the plants out, and return them again after being well-watered, and the extra moisture drained away. All the instructions so frequently given in calendars, &c., about watering so many times in a week, just go for nothing. The watering must be regulated entirely by the state of the weather, the condition of the plants, and the position as respects the temperature and moisture in which they are placed. We have several times endeavoured to show the evils of the *dribbling* system, and the necessity of watering *only* where it was wanted; then doing it effectually, and waiting quietly until the services of the water-can were again required. This must be more particularly attended to in the circumstances to which we are now referring—when obliged to water some plants in a growing state, and in a genial temperature, two or three times a week.

I have frequently had plants in these cold pits that did not require a drop for two or three months. There, moisture is always more ruinous than dryness. When the plants are set upon the floor much less watering will be necessary than when they are placed on shelves, as from the floor and atmosphere combined they will obtain nearly as much moisture as will meet the demands of the evaporating processes. True, if a sunny day cheers us in a course of dull foggy weather, the plants may appear a little distressed, as they have become unused to perspire so freely. Well, and shall we not give them a good drenching *now*, says some score of young ardent gardeners at once, to whom the sight of a leaf a little flaccid, or drooping, is wofully distressing. Perhaps it may be necessary, but, at all events, do not do it recklessly, and in a hurry; for though we like to see things done *expeditiously*, we have little faith in any thing that is set about in a *hurry*. Have you never experienced a strange glimmering sensation in your organs of vision when, after being shut up in a comparatively dark place, you at once emerged into the full blaze of a noonday sun? There was nothing wrong with the eye, but it required a little time to get used to the sudden transition from darkness to light; just so, in a majority of cases, will it be with plants in such circumstances. It is not so much the want of moisture as the sudden transition that affects them—a transition from a state of absorption in dull foggy weather, to one of perspiration in a bright day. When emerging suddenly from darkness into light, we instinctively shade the eye with the hand; and a worse policy might be resorted to in the case of plants so circumstanced, by first blunting, for a time, the force of the sun's rays. It will, generally, then be found that the plants will regain their usual appearance before the evening. However, as the presence of the sun in winter is too valuable, for hardening and condensing the tissues of the plant, to be long dispensed with, the tendency to flag in these sudden changes may be prevented by lessening the powers of the foliage, by *dusting* the plants several times with a fine misty vapour from the syringe, and giving but little air, as the keeping the plants comparatively close in sun heat will have none of the weakening and drawing tendencies that keeeping them thus shut up in a dull sultry atmosphere would unquestionably have. If the sun should thus appear for days, then watering will very likely be wanted, but should never be given without examining the plants individually, and performing the operation in the morning, that the surface of the pots may become comparatively dry before night. In fact, when only a few require it, and time is no object, the pots might be set in water, within an inch of the surface, allowed to drain, and then replaced—as, if dull or frosty weather should succeed, the drier the soil is the better will the plants be preserved, as the cold will have less influence, and evaporation from the soil will be diminished. Too much moisture in winter is the great thing to be avoided in cold pits.

In Constructing any Pits, therefore, either of brick or of turf, for such purposes, and that are to receive no assistance whatever from artificial heat, guard especially against sinking the bottom below the ground level—rather let it be elevated above it, well drained, and concreted.

Many of us professionals have our troubles with these sunk pits, but that is no reason why you should follow our example. It is also of importance that air bricks, or openings provided with wood slides, should be let in, or left in, the front or back wall, on a level with the internal surface, as thus a circulation of air among the pots will be promoted more effectually than by any tilting or moving of the sashes merely that can be resorted to. Hence we have always found that a wooden frame set upon bricks, so as to admit a free circulation of air beneath, preserves greenhouse and half-hardy plants much better from damp and mildew than when the frame is set close to the ground, or the plants were placed in a common brick pit furnished with no such openings below. Of course such a frame would require much trouble in winter in regulating its covering and the protecting of its sides.

My principal stock of bedding-out plants stood until the other day upon a dry south border, protected above by some old sashes, resting at the back upon a rail and posts, and in the front upon some boles of trees laid down lengthwise. The air thus was enabled to circulate freely amongst the pots, and every fine day every alternate sash was lifted off and placed upon its next neighbour, as there was no convenience for sliding them. The plants, though treated in every other respect similarly, are yet more robust and hardy-looking than those coddled in frames and pits, and that received plenty of air by moving and sliding the sashes in the usual way. I, however, had provided myself with straw hurdles to shut in the back, litter to them along the front, and dry grass to place over the sashes in severe weather. I have frequently had to keep such things with less convenience all the winter, and I only removed them to a late vinery, where they could have abundance of air, not so much because, on the whole, the plants would do better, but because the trouble of watching the weather, and covering and uncovering, would be so far prevented during some of the worst months of the year, and also because any little attention they might require—such as stopping, picking, and cleaning—could be given in bad weather; while, if out of-doors, fine weather must have been devoted to such employment. Even on this account alone a small house—such as that described by Mr. Beaton as "Fortune's pit"—will always convey more pleasure to an amateur than a structure of humbler dimensions, though of course the expense of the latter will be considerably less.

It may suit some of our friends to know that *turf pits* will answer every purpose of brick ones. In making them, do not sink the interior; place some drain tiles through the base of the front and back walls, furnished with wire netting on the inside, and with wooden plugs on the outside, so that air may thence be admitted without vermin; drive in posts at the back and front of the height you intend the pit to be: these posts are to receive the rails on which the rafters are to be fastened. If the back wall is to be three or four feet in height, then the width of the base should be at least eighteen inches, and the width at the top from nine inches to a foot. The greatest width might consist partly of earth, having long pieces of turf to act in the manner of *ties* or *bonds;* use the turf, if possible, rather dry, and put it firmly together; when well set, and you wish it to look neat, plaster the inside with a mortar made of water, clay well beaten, and chopped straw, or stable litter; and, when this plaster is dry, brush over it with a wash made of lime and sand, adding a little soot, if too white for the summer. Plaster the outsides with gravel and clay, or concrete, made by mixing up, with a sufficiency of water, six barrowloads of gravel and one of lime, put down quickly, and made smooth by the back of the spade, and an outer case when nearly dry; brush over, in a dry warm day, with coal-tar, and immediately throw over it road drift or rough sand. By these means, wet will be effectually excluded, and more frost kept out than by a thick brick wall, unless, indeed, it is built hollow.

R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

HORTICULTURAL SOCIETY, DEC. 4.—On this day there was a meeting of the London Horticultural Society at their rooms in Regent-street. We happened to be present, and were so much gratified with the orchids exhibited that we are tempted to give some account of the best specimens, as an illustration of what good cultivation can effect. The finest specimens were three of *Barkeria Skinneri*, shown by Mr. Plant, gardener to J. H. Schrœder, Esq., of Stratford. These were all well grown and finely flowered, though in different degrees. The best had 18 flower-stems, many of them two and a half feet long, with spikes of flowers densely bloomed, each full nine inches long; the colour a most exquisite rosy purple. They were grown upon blocks of wood without any moss. Mr. Plant informed us that they had come to that state of perfection in a house very little warmer than a common greenhouse, and had been hung opposite the door, which was frequently opened. By such treatment they had thriven and come to the perfection as exhibited on this day. They were, indeed, by far the finest specimens we ever saw of this most lovely species. Three points of good culture were exemplified by them: first, they were grown on blocks without moss; secondly, they were grown in a comparatively low temperature; and, thirdly, with plenty of air during the day. We were glad to observe this, because it exactly coincided with our own views and practice, and because the lower the temperature they can be grown in the more persons will be enabled to cultivate them. In the same collection was a stately plant of the noble *Vanda tricolor*, with one spike of its large variegated flowers. Also, Mr. Plant had a good specimen of *Angrœcum bilobum*, with four long spikes of its pretty white curiously tailed flowers, and several others of less note. A Knightian Medal was deservedly adjudged to the above three plants. There were also some good orchids from the gardens of Mrs. Lawrence, of Ealing Park; Mr. Walker, gardener. He had good specimens of *Vanda insignis*, with two spikes of flower, and *Vanda tricolor* with one spike. These were both healthy fine plants. He had also a nice plant of *Vanda violacea*, with two spikes of white violet-spotted flowers. This is a lovely species, which usually flowers in winter. In the same collection there was also a large plant of *Saccolabium denticulatum*, with numerous spikes of its pretty toothed labellum and brown and white flowers; and a good plant of the lovely *Lœlia autumnalis*, with one spike of highly coloured blooms. A Banksian Medal was awarded to the Saccolabium and the three Vandas. A small collection of orchids came from the nursery of T. Jackson and Son, of Kingston. In it was the lovely *Odontoglossum membranaceum*, and the equally pretty *Lycaste Skinneri*, with three of its large fine flowers; a certificate of merit was awarded to these. A good plant of *Cypripedium insigne*, well flowered with upwards of 20 blooms upon it, was exhibited by Mr. Munnock, gardener to C. Druce, Esq., of Denmark-hill. This is another good winter-flowering plant of great beauty. It possesses also the good quality of lasting a long time in flower, and is easily cultivated, requiring very moderate heat, in a mixture of rough loam and peat well drained.

Stove Plants.—Mr. May, gardener to Mrs. Lawrence, sent three plants of the fine *Aphelandra aurantiaca*, with several spikes of fine deep orange-coloured blossoms. This is a good winter plant, but rather difficult to cultivate, requiring a bark stove and a high temperature. A specimen of *Vriesia speciosa* came from Messrs. Jackson and Son. This beautiful plant is better known as *Tillandsia splendens*. It was shown in good condition. The leaves are in form something like those of the pine-apple, but have no spines. They are beautifully barred on the under side with broad brownish purple stripes. The flower-stem rises from the centre clothed with scarlet bractes, arranged in two rows and flattened in form, looking something like, as the Secretary, Dr. Lindley, remarked, a scarlet feather. The flowers are yellow, but inconspicuous. The colour of the bractes was not quite up to the mark, no doubt on account of the dark season of the year.

Greenhouse Plants.—A dwarf *Chrysanthemum*, two feet high and two feet through, was exhibited by Mr. Moore, of the Chelsea Botanical Gardens, to show the mode by which it had been managed to procure dwarf plants. It had been struck from a cutting very early in spring, and stopped and potted repeatedly. The result was, the dwarf plant full of flowers as exhibited. A new hybrid heath, *Erica elegantissima*, with short crimson, tipped with white, bunches of flowers, was sent by Mr. E. G. Henderson, of St. John's Wood Nursery. This promises to be a valuable addition to our winter-blooming heaths.

Fruit.—A large basket of Muscat of Alexandria grapes was sent from the gardens of — Nash, Esq., of Bishop Stortford. These were finely swelled berries of the most beautiful amber colour; they were, indeed, perfection itself. A new pine was exhibited by Mr. Wilmot, market gardener, Isleworth. It was named the *Prince Albert pine*, weight 5lbs. 6oz. Its shape was in the way of the old Enville; flavour good, and the cone not faulty, as the generality of black pines are at this season. He had also a fair specimen of the *Blood pine*, weight 3lbs. 12oz., more remarkable for its singular dark colour than any other quality. There was a large dish of the fruit of *Benthamia fragifera* (a plant from Nepaul); the fruit is not eatable, but very ornamental. These were grown against a wall in Devonshire. The fruit is something like overgrown raspberries, of a dull red colour, and must be very handsome on the tree. The Chairman stated that he had seen them growing in Devonshire and the West of England. They are hardy enough to stand the open air in that part of the country, but not more northwards.

In miscellaneous matters relating to gardening, there was exhibited a good kind of label for naming hardy shrubs or trees, used, as we understood, in the Arboretum at Derby. It is made of a peculiar kind of pottery ware. The names are painted on a sloping face, and burnt into the material. It appeared to be excellent for the purpose, having the two good qualities of durability and legibility; but the expense was against it, each costing 1s. 3d.

From the garden of the society there was, as usual, a table covered with plants, consisting of some large plants of Chrysanthemums, well flowered; a good *Manettia bicolor*, a plant useful as a winter flower; and a plant in flower of *Abronia umbellata*. This promises to be a good bedding plant. It has pink flowers, arranged in umbels in the way of verbenas, and has an agreeable perfume.

The rooms were ornamented by a collection of wax flowers from Mrs. Dorville, 109, Oxford-street, *artiste*, as was stated, to her Majesty the Queen, and patronised by the Duchess of Sutherland. These were exhibited in glass cases, and were exceedingly creditable to the artist, both for their exquisite modelling and beautiful colouring. Mrs. Dorville appears to have brought the art of thus imitating flowers to the highest perfection. We particularly noticed the following, as being so like the real flowers as almost to deceive a connoisseur:—*Hoya carnosa*, with a long branch of leaves and branches of flowers. *Sophronitis grandiflorus*, an orchid fastened to a natural log; the leaves and pseudo-bulbs, as well as two flowers, well imitated. The art of imitating, and, as it were, immortalising, flowers in wax, is a most elegant and pleasing amusement for ladies. We have the pleasure of Mrs. Dorville's acquaintance, and have often seen with great delight her large collection of wax flowers. We consider them well worth inspecting, and are sure she will have great pleasure in showing them, in her usual pleasing manner, to any respectable party who may think fit to honour her with a call.

The exhibition of so many orchidaceous plants in flower in the month of December proves the great value of these plants as abundant producers of beautiful flowers at this season of the year. This tribe of plants, indeed, flower all the year round, more or less. In that respect they are far superior to any other, except, perhaps, Cape heaths; and they have the advantage even of that fine tribe of plants in the size and splendour, as well as exquisite fragrance, of various species. It was with a view to show this superiority of orchidaceous plants that we were induced to fill the space this week allotted to us with the foregoing notice of the meeting in Regent-street; and, as a further proof, we subjoin a list of orchids now in flower under our care at Pine-Apple-place. We hope this will induce numbers of our readers, who may have the means and opportunity, to commence growing them. By our own feelings and experience we can assure them that they will never regret cultivating, as far as may be prudent, this most interesting tribe of plants.

ORCHIDACEOUS PLANTS NOW IN FLOWER AT MESSRS. HENDERSON'S, PINE-APPLE-PLACE.

Angrœcum bilobum (two-lobed Angrœcum)
Barkeria Skinneri (Mr. Skinner's Barkeria)
Brassavola nodosa (knotty Brassavola)
Brassavola canaliculata (channelled B.)
Cyrnoches ventricosa (swollen-lipped swan flower)
Cypripedium barbatum (bearded lady's slipper)
Cypripedium insigne (noble lady's slipper)
Cypripedium venustum (charming lady's slipper)
Dendrobium chrysanthum (golden flowered Dendrobium)
Dendrobium heterocarpum (various podded Dendrobium)
Dendrobium nobile (noble D.)
Epidendrum auritum (eared Epidendrum)
Epidendrum cochleatum (shell-flowered E.)
Epidendrum fragrans (fragrant E.)
Epidendrum cuspidatum (pointed E.)
Grobya amherstiæ (Lord Amherst's Grobya)
Lœlia autumnalis (autumn-flowered Lœlia)
Leptotes bicolor (two-coloured Leptotes)
Oncidium ciliatum (fringed Oncidium)
Oncidium crispum (curled flowered O.)
Oncidium divaricatum (severed O.)
,, macropterum (large-winged O.)
Oncidium ornithorynchum (beaked O.)
Oncidium Suttoni (Captain Sutton's O.)
Phalœnopsis amabilis (lovely moth flower)
Sophronitis violacea (violet Sophronitis)
Stanhopea oculata (eyed Stanhopea)
Stenorhynchus speciosus (showy S)

Thus, there are 28 species in flower here in the month of December, and we have no doubt that in large collections, such as Mr. Rucker's and Mr. Holford's, there are numbers more.

FLORIST'S FLOWERS.

Roses.—We mentioned last week that now is a good season to plant this "Queen of flowers." And in order to give our readers an opportunity to know what new roses are worth growing, we add a list of new ones of good qualities, furnished us by an eminent rose grower. The accuracy of his descriptions may be confidently relied upon. The prices vary from 2s 6d to 7s 6d each.

Among Moss Roses, *Etna* is, perhaps, the most striking of the new varieties; its flowers are brilliant crimson, overspread with a soft shade of purple, large and double; the growth is moderate, and it belongs to that class of roses called "showy." Another in this class, *Princesse Royale of Portemen*, is well worthy of a place in the choicest collection. It resembles *Perpetual Bernard* in the size, form, and colour, of the flowers. *Laneii* is also deserving of a passing word of commendation; the flowers are rosy crimson, tinted with purple, globular in shape, large, and full; this is a bold rose, of vigorous growth, but not so mossy as some. The greatest novelty among French Roses is *Ohl*, the ground colour of which is dark crimson, occasionally relieved with bands of scarlet, giving the flower that rich fiery appearance which cannot fail to attract the attention; moreover, the flower being large and very double, it is an excellent show rose. There are also some very pretty Striped French Roses, of recent introduction, which, from the pleasing variety they form, are desiderata. Of these, *Oillet flamande* and *Perle des panachees* are the best. The former is white, striped with rose and rosy lilac; the latter is also white, but it is striped with one colour only—rose. Both are of moderate growth, and bloom freely.

Among Autumnal Roses there are two perpetual moss —*Mauget* and *General Druot*—both of recent introduction. Mauget is figured *faithfully* in "The Rose Garden," and is undeniably the finer variety of the two, but it is one of the most delicate of roses, and few succeed in developing its beauties; the form of the flower is unique, the colour soft rosy crimson. General Druot, with less double and less perfect flowers, of a purplish crimson, is of free growth, and, consequently, more generally met with.

But the Hybrid Perpetuals present us with the richest stores of novelty, and, rare combination, quality too. *Belle Americaine* is a finely formed blush rose, of close habit of growth and very sweet. *Chateaubrilliant* is of the most bewitching tint—pure pink—found among the tribe. The flowers are large, but only semi-double; as if Nature, in the distribution of her gifts, avoided the concentration of perfection in all points in the same flower. Here also belong *Duchesse de Praslin*, with flowers of a delicate blush, the centre pink; *General Negrier*, one of the lightest in colour, a large and full-cupped flower, apparently not over luxuriant; and *Standard of Marengo*, with flowers of the most brilliant crimson, large and double, and of elegant form; these are new and excellent. But we must not forget *Docteur Arnol*, whose flowers, though not over large, are perfect in form; they are bright red when newly expanded, dying off light red. *Cymedor*, too, though much talked of, is not yet universally known. It is one of those brilliant tints, the sight of which on a chilly day in November is peculiarly agreeable. *Madame Pepin* is a very pretty rose, large and full; the flowers are of a roseate hue, the back of the petals being nearly white. *Pius-the-Ninth* is a flower of regular form, large and full, colour brilliant crimson. *Polybe*, a rose-coloured flower, with lilac edges, is large, full, and of good form. *Reine des Fleurs* is larger than the last, more globular, and lighter in colour; indeed, it is nearly pink. *Soleil d'Austerlitz* is a flower of great promise; it is crimson, large, and full; the tree is of vigorous growth. Lastly, the *Geant des Batailles* calls for a brief description, as one of the most striking among new roses; it is crimson-blood colour, often shaded with purple; the growth is scarcely above the average. T. Appleby.

THE KITCHEN-GARDEN.

Routine Work.—The dark short days of December have pretty well ended all the sowing and planting operations in this department, but there is plenty to do even at this season in methodically planning our operations, and making arrangements for the future. Old *walks* should be turned and cased anew, and if the edgings are uneven, or in any way out of order, they should be renovated, for whether these consist of box, thrift, slate, tile, boarding, flints, pebbles, or any other material, it is only a neglectful gardener who allows them to remain broken and uneven. Let all old *drains*, grating-traps, and cess-pools be cleansed and put in order, and new ones made, if requisite. The outside *fences* of banks, hedges, and ditches, should also be trimmed and plashed, and all ditches and water-tubs should be examined, and thoroughly cleaned out. All the ditch scourings, with all other kinds of refuse and rubbish, should be collected together, and be placed as a foundation for putting other manure upon, for the purpose of absorbing its juices. Our system is, to spread, in the first place, on all such accumulations, a considerable portion of *salt*, which not only destroys the slug and its larvæ, as well as many other obnoxious insects, kills the weeds, &c., but converts the whole heap into manure of the most valuable kind. Every body knows the beneficial effect of sea-weed as a manure; and those who are living too far inland to procure this advantage may prepare something similar to sea-weed by thus adding salt (which is now so cheap) to all the ditch scourings, refuse earth, and rakings of every description, weeds included, if such things exist after our repeated admonitions with regard to hoeing, forking, and surface-stirring the earth; for if our directions have been fully carried out neither weeds nor slugs will be found to any extent, and not only will the soil have become doubly productive in consequence, but the crops will be more clean, healthy, and of a very superior quality. Advantage, too, should at this season be taken on frosty mornings, and on other favourable opportunities, not only to collect together all materials fit for converting into manure, but to wheel on to all spare ground that which is already fit for use. Deep *trenching*, *ridging*, and the forming of sloping banks when any space is unoccupied, should be attended to; and after all this work has been done, frosty mornings may still be profitably occupied in routing over ground that may have been some time ridged, &c., with a strong fork or pick-axe, thereby destroying the vermin, and permanently improving the soil by pulverizing and exposing it to the beneficial influence of the atmosphere. A moderate portion of salt, too, strewn over spare ground, and left to be washed in by the winter rains, is also very beneficial; and when salt is added, as before recommended, to the manure heap, it greatly enhances its value, particularly when applied to the brassica, turnip, or mangold-wurtzel family of plants, as well as corn. How often do we see valuable materials allowed to waste away, and in some instances even to become a nuisance to the neighbouring dwellings, in the stagnant open gutters, and ill-drained pools of sewerage, which, if collected, and added to the manure accumulations, would afford a lasting benefit to the ground, which, at this season, stands greatly in need of it. All fermenting materials should be repeatedly turned, and kept as snugly together as possible, ready for use when required. *Hot-beds* already made, and worked by fermenting materials, should now be sheltered with flat made faggots, tied in sufficient lengths to reach the top, and with two, three, or more, withes, if needed, to keep them snug. Refuse prunings, evergreens, and furze, are all excellent things for this purpose; and in localities where such things are not obtainable thatched hurdles may be used with advantage. *Linings* to hot-beds require good protection at this season, or the heat may be very soon lost by drenching rains, or by snow and cutting winds. The beds should, also, be well topped up with dry mulch, hay, or leaves.

Broad Beans.—Those who have not already done so, may make a good planting of broad beans at the present time, according to directions already given.

Sea-kale should be covered up on nice fine days, either with leaves only, or any other steady fermenting materials, the great secret being, as before stated, not to force it too fast. Always make good use of the quick-lime bag before the pots are put over the crowns. We always keep a quantity of quick-lime by us in a box or tub, and a coarse linen bag ready for dusting, when needed, for the destruction of slugs. As soon as our stock of lime is nearly exhausted we have in another bushel or two. The tub stands in a dry open shed, where the lime slacks of its own accord, and is always ready for use.

Mushroom Beds, in the common sheds, should have their share of attention; if water is needed it should be tepid, and given from a very fine-rosed water-pot. The best covering is refuse or mouldy hay: the coverings should be regulated by the heat of the beds or the out-door temperature; of course, if the bed is cold, and the external atmosphere cold too, the beds will require extra coverings to make up for it. Look well over the garden on the first symptoms of a frosty night, to see that nothing wants attention; do not stop until the next day, and then say, "I wish I had covered that quarter of celery,—taken in that lot of endive,—or attended to those turnips," &c. How often have we heard persons say, "I little thought that the frost would have been so sharp last night; it actually froze in my green-house, or potato-frame," as the case may be. But all would have been right had a little more thought and industry been made use off.

James Barnes & W.

MISCELLANEOUS INFORMATION.

OUR VILLAGE WALKS.

(No. II.)

One of the most beautiful scenes in nature is presented by a hoar-frost. I am not sure that even summer itself has any thing more lovely, particularly when it is lighted up by a bright, frosty sun; and, in spite of the cold that nips our fingers and quickens our steps, we cannot help lingering and standing to admire. A few days ago, a very thick hoar-frost mantled the earth, and almost looked like snow. The whole country, as well as every tree and bush, and blade, were milk-white with the delicate incrustation: there was a frosty mist in the distance that made us shiver, yet a warm sun looked down from a cloudless sky, and caused every thing immediately around to sparkle like diamonds. The young wheat glittered beautifully, bending beneath bright drops; and the dead blossoms and stalks of the grass, left standing in pastures where sheep had fed, were so completely covered with rime, that the ground seemed as if yielding flowers of frosted silver. I never saw anything more beautiful, and where a sheltered sunny spot permitted one to pause, it was quite like enchantment to look around. The boughs of the fir-trees, and of the gracefully spreading cedar, look doubly beautiful when delicately and minutely defined by the touch of the hoar-frost's pencil; the evergreens, and the lingering leaves of the wild hedge-plants, look so silvery and bright, and the branches and twigs of all sorts and sizes are so distinctly marked and beautified, that the eye never wearies of passing from one object to another of equal though varied loveliness, and then viewing the whole as a mass of sparkling splendour. I have often heard my father describe a sight he once—and only once—was fortunate enough to see, and probably few persons have witnessed anything like it. During the winter, after a heavy rain, a sharp and sudden frost set in, while every thing was still soaked with wet. The water froze on the trees, and in the morning the country seemed like a world of glass. Although this phenomenon, as it really may be called, lasted but a very short time, the effect was dazzling and extraordinary; and during the silence of a still, wintry morning, my father heard crash after crash among the woods, as bough after bough snapped beneath the weight of its icy burden. The influence of the sun, however, soon changed the scene into one of dripping thaw, and the broken branches were all that remained to tell of this short-lived scene of beauty.

The hoar-frost seldom lasts long, but during its existence few natural appearances are more beautiful. It also has a word for the Christian, as he gazes with delight on the silvery scene. It reminds him of the desert food of God's people of old time—the manna—that "small round thing, as small as the hoar-frost on the ground." It reminds him of the power of God, who gave bread to His people in the wilderness—and of His unchanging love, who gives us now "that bread of life," "that man may eat thereof and not die."

What exquisite beauty arises from the very circumstances least likely to produce it. The frost that binds all things with iron decorates the scene with light and beauty, just as the trials that seem to crush the heart gild it with greater blessings.

At this season of the year a stillness seems to overspread the earth, while nature's sleep is heaviest. The bold, bright-eyed robin, indeed, utters his sweet notes among the leafless trees but seldom, and not with his wonted autumnal glee. He still hops briskly before us as we walk, and visits our windows for the well-known crumbs; sometimes making his home among the nooks of the peaceful church, and adding his joyous warble to the hymns of praise. There is a friendliness in our feelings towards these birds, awakened by the tale that every English infant knows, that make them more peculiarly our outdoor companions, and gives them confidence too. How seldom we amuse ourselves among our flowers—how seldom does a gardener pursue his work—without an attendant robin! It may really be called the gardener's bird, and will fly to his very feet to snatch up the worm that the spade has turned up with the fresh moist earth. I will venture to say that almost every cottage gardener has a peculiar robin that flutters near him while he digs and rakes. My father, who spent much of his time in his kitchen garden, was always accompanied by one of these fearless little birds; and it became so tame that it used to hop about close to his spade, instead of keeping, as they usually do, at some prudent distance. A friend, whose pretty cottage is sheltered by a thickly-covered veranda, found a robin's nest close to her door, among the leaves and twigs, yet so ingeniously contrived that one large ivy leaf totally screened it, although every person brushed against it as they passed. Here the hen redbreast took her seat; and when the protecting leaf was gently raised, the dark bright eye was seen glancing upwards; but no sign of fear was given, and the little confiding creature sat undisturbed. Our friend, whose love for her garden made her rather a foe to little birds, could not resist this proof of confidence, and its life was spared. If man's hard heart is softened by such touching marks of trust, how fearlessly may we cast ourselves on the care of Him "who knoweth them that trust in him," and will in no wise cast us out!

The bright berries of the beautiful holly are now glittering among the polished leaves, and make some of our woodland walks still gay. The bright green mosses under our feet, and the shining hollies beside us, almost cheat us into the idea that summer is returned, especially when a stream of sunshine crosses the glades, and tinges the boughs with golden light. How beautiful, how very beautiful, is an English country walk even in the deepest winter! The holly is such a capital fence,—it is so bright and beautiful at every season, and is such a chip of old England too,—that I wish it more frequently adorned our gardens. Never mind the formality of a holly hedge—it reminds us of bygone days and persons, of our great-great-grandfathers, and of times we love to look back to in history's brightest page. A holly-bush should be in every garden, (twined with honeysuckle for summer beauty), because it reminds us, above all, of the season we are now just on the point of celebrating. We are again on the threshhold of Christmas: how many hearts have ceased to beat since we last heard its thrilling anthem! Let us enter upon this blessed season with deep but holy joy; not as a time of feasting and amusement, but as a time of spiritual and eternal interest. England has just witnessed a scene never to be forgotten. She has seen her children dying in her streets, not by tens but by thousands; and she has seen the national prostration of the heart replied to by *instant* deliverance. "While thou art yet speaking I will answer thee," has been fulfilled to our hearts, and openly performed before our eyes. Oh, let England remember that the Saviour whose birth we are now about to commemorate is "the way," the only way, by which our prayers have gone up to God. Had He not come in the flesh, our prayers could never have been heard,—our full and unanimous thanksgiving could never have been poured "into the ears of the Lord of Sabaoth."

Let each cottage gardener, as his children deck his peaceful home with holly, remember this, and strive to keep this day and season holy. There are plenty of days on which to eat, drink, and be merry—there is but one on which we specially remember the birth of Him "who came to save his people from their sins." The cottager has much in his power; he can *set an example*, and stand forth as a firm and faithful servant of the living God.

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of The Cottage Gardener. It gives them unjustifiable trouble and expense; and we also request our coadjutors *under no circumstances* to reply to such private communications.

Error.—At page 130, first column, line 19 from bottom, for *rainy* read *sunny*.

Seeds (*G. A. Clark*).—We cannot tell you where you can purchase Grimstone's Egyptian Pea, and we have no Himalayah Pumpkin seed at present.

Mummy Wheat (*W. B. H.*)—The party you name has been supplied. Many thanks nevertheless.

Protecting Gooseberry Bushes (*J. C. K. N.*).—You may throw some long straws over them, and then draw them together with withes, as you propose, to protect their buds from bullfinches and other birds. Try also white worsted laced among the branches. You may buy *Pansy* and *Calceolaria* seeds of any florist. They may be sown at the close of February.

Index and Cover (*Rev. E. B. E.*)—These can be had for binding The Cottage Gardener into one or two volumes. You may obtain them at No. 2, Amen Corner, through any bookseller.

Rhubarb Plants (*Ibid*).—The two which were subdued by mildew, or other source of failure, had better be examined. Remove the earth from over them, and if you find the roots alive and healthy, put on some rich manure, and leave them after again covering them.

Late-sown Italian Ray Grass (*H. B.*)—November is very late for the sowing of this grass; the consequence to be apprehended wherefrom is, that frost will come and expand the soil, and heave the young grass plants out of the ground, and then, collapsing, leave their tender roots on the surface, exposed to the withering effects of the March winds. The best preventive that occurs to us (and it depends on the earlier or later coming of frost whether this would be available or not), would be to give the grass a dressing of liquid manure immediately, with intent to accelerate and invigorate the vegetation, and enable the roots to anchor more deeply in the ground before the frost arrives to pull them out. Should three weeks or a month of mild weather follow, this process might considerably increase the length of the roots, and the number of fibres that would get involved in the earth before the attack of the enemy. A further precaution, if accessible, would be to spread immediately a coat of dung or litter over the piece; but it should be very finely divided and shaken about, not left in large lumps and clods, which would suffocate the tender plants which should be caught under them. This covering would not only impede the frost from penetrating so deeply as it otherwise would, but also would shelter such young plants as might be drawn out of ground while they were again taking root in the soil, finely pulverised, as it would then be, by the effect of the frost. The liquid manure, too, would, in some degree, prevent the frost from taking its full effect on the soil. The Italian ray grass seems to be a plant to which every quantity of liquid manure is welcome in all stages of its growth, and which, in truth, does not produce its marvellous returns without a quantity of food stimulents, and abundant moisture, which would be excessive for any other plant. A dressing of liquid manure, when the grass begins to shoot vigorously in spring, and another dressing immediately after every cutting, would be beneficial. The dose will not produce its due effect unless in the growing season, and it is only from the necessity of the case that we recommend it to be more applied in mid-winter. As to the application of the crop, it may be cut green, and used for soiling, or it may be cut and dried for hay, and that more than once in the year, if the manure be supplied in sufficient abundance. If cut for soiling, the manure should be applied to each patch that is cut so soon after it is cleared as convenience will permit, which will insure a regular succession of green fodder from spring till late in the autumn. By taking care to cut the grass before it forms seeds, its duration (for it is not a perennial), may be much extended.—W. P. T.

Bed of Mixed Fuchsias (*J. S. L.*)—For your circular bed no varieties are known to us as being better than *Globosa*, *Gracilis*, and *Ricartoni*, of the older sorts, and *Carolina* among the newer ones. Perhaps some of our readers will be able to supply a more varied list. Mixed fuchsias in beds are far from fashionable.

Yellow Banksian Rose not Flowering (*Verax.*)—Shorten or prune the side shoots in June, after the plant's usual time of flowering, and all strong shoots that appear from that time until August stop when a few inches long; and if any are produced after the middle of August, cut them off altogether. In order to reduce the strength of your plant to a flowering state, root prune it soon; try the effect of cutting off one-third of the strongest roots.

Grass Garden (*W. H. S.*)—The grasses form the most perfect natural order of plants, and you have been very fortunate in your choice to begin "dabbling in botany," with your daughters, among the grasses, for these will afford them the best illustration of the beauty and truth of the natural classification of plants; therefore, by all means arrange them according to their natural affinities, as affording the greatest assistance to the memory. The most complete grass garden that we heard of was at Woburn Abbey. It numbered 242 spaces or beds, of two square feet each, enclosed by cast-iron frames, and gravel paths, two feet nine inches wide, separating the beds on every side. You will find an essay and plan in the *Gard. Mag.*, vol. i. 26—115. We would make choice of a narrow border along side of a walk; trench it this winter, and if the soil is stiff, add correctives; the majority of grasses prefer a deep, light, sandy loam; divide it in March into narrow beds, in which sow or plant the kinds according to the Jussieuean system. There is a collection of grasses at Kew, and at some other botanic gardens. It would be very desirable to grow the marsh und water grasses in pots; and, also, those that creep very much below the surface, as well as rare sorts. What Mr. Beaton alluded to for lawns has no connexion with your case, and the subject is not in our programme. The best book to consult is the *Hortus Gramineus Woburnensis*, by Sinclair.

Leaky Greenhouse (*D. J., Birmingham*).—Mr. Beaton says that he would prefer your new greenhouse, for growing plants, before the large iron conservatory in the botanical garden at Edgebaston. Your roof is rather flat, but if you had followed his directions at page 120 of vol. i., and puttied the laps, there could be no drip. The wind beats in the rain between the laps; and all that can be done this winter is to take advantage of a dry day, and run a little putty along the upper edge of the laps from the inside, pressing it so that nearly half the lap is filled; a good glasier would soon run over it, laying in the putty with his thumb and finger; and the work is not formidable for any one; but it will not answer to fill the laps from the outside, unless the whole space is filled, and yours are too wide for that, being one-quarter inch—one-eighth is the proper size.

Fernery (*P. S.*).—The trapesium-shaped, and overshadowed, piece of ground behind your house, and enclosed by high walls, is one of the best situations in Cornwall for a fernery; and we think Mr. Appleby's papers on the subject of ferns most fortunate for meeting such cases as this, where nothing else in the way of gardening could be effected. Make an oval figure along the centre, and form it into rockwork, by raising a mound of earth, to which you may give an outline to represent a hill, or ridge of mountains, covering it with stones of different sizes, and forming beds for ferns, saxifrages, mosses, and, indeed, any Alpine low plants you can get for trial; then form a walk all round it, leaving a border 18 inches wide next the walls, and about a yard wide at the corners; edge the walks with London pride, or any of the low dense-growing saxifrages. The angles would do for low rhododendrons, and the rest of the borders as an experimental garden, to see what things will thrive. All the walls may easily be covered with climbers; those strong, almost evergreen, roses we recommend so often would soon cover the whole, if the borders are made of good soil. Pray let us know how you succeed.

Banksian Roses not Blooming (*Rev. S. G. F.*).—These, on an east aspect, and very much shaded, will hardly flower under such disadvantages. However, we have often seen them flower abundantly on an east aspect after they were five or six years old; but these were not shaded, and we are not aware that any roses will flower freely when much shaded. As yours are very vigorous, we would still give them two more years' trial, and root-prune them this winter, cutting through three or four of the largest roots a yard from the stem, giving a little pruning and training about next midsummer, and very likely that will cause them to flower the following year. Nothing that we can do this winter to any climber will much influence the bloom of next May and June.

Strawberries Unfruitful (*T. C.*).—Yours appears to us to be a case common to hundreds. You say you had coal-ashes forked in "to lighten the soil," which is a "stiff red clay," yet you have only leaves and blossoms. Is it not a fair inference that your soil is water-logged? If so, all the coal-ashes you can dig in will not effect a radical cure. First, carry away stagnant waters by thorough drainage, and then you will need little coal-ashes; not that we have any very particular objection to them. We may, however, be mistaken: if a case merely of inveterate grossness, why then plant on elevated beds, one foot above the ground level, and after a punishing crop, such as cabbages, then plant strawberries. This will tame them.

Fruit-trees for Back-wall of Vineries (*Lucubratory*).—The warmer house may have the *Eugenia jambos*, *Passiflora edulis*, or *Passiflora quadrangularis*, and the *Psidium cattleyanum*. For the cooler house, the *Loquat grafted on a quince stock*; the citron, lemon, orange and pomegranate also may suit. Figs are rather doubtful mixed up with these things. Now, be it observed, this is not a mere question of wintering; the question of whether they will be *profitable* depends mostly on the amount of solar light the vines will permit them to receive. Pray confine your vines to the rafter. Your *Commelina longicaulis* may be allowed to go nearly dry in the winter, and then be stowed away with your cool and dry section of plants, or roots, taking care that the ice king does not reach them.

Nut-tree Suckers (*F. C. F.*).—Cut away all the young shoots from the old nuts. They are what are termed suckers, or tantamount to them. Let all the powers of your root be diverted to the original head. These suckers may be viewed in the light of colonists, who are becoming saucy and inimical to the welfare of the parent state.

Grapes for a Vinery (*Vitis*).—There is, besides those you have, the Charlesworth Tokay and the Cannon-hall Muscat. Have you these? Wests' St. Peter's, if true, is one of the finest late grapes in the kingdom. We have no late grape half so valuable, if done justice to. This, as well as the Muscats, succeeds best on the black Hambro' stock; and were we in your position, with too many Hamburghs, we would graft on these, provided we could rely on the border being all right. Royal Muscadine is about our best early grape. White Frontignan is a capital grape, and Black Prince a great bearer.

Hautbois Strawberry (*G. S.*).—We merely meant, at p. 92, that Hautbois strawberries very often produced a capital crop from unmolested runners. We may, however, remark, that the finest prolific Hautbois we ever saw were grown two feet apart in the row, by a yard between the rows. The most certain plan, perhaps, would be to gather the runners in the middle of August annually, and plant them six inches square in elevated beds. Obtained in July, and planted in rich soil, they would flower the same autumn.

Spur System (*Ibid*).—Read our fruit articles; every principle which you advert to has been handled repeatedly. Our space will not allow us to go into detail. We do not know the *Malta pepper tree* by that name. Sulphate of ammonia would not cure the hardness of water proceeding from sulphate of lime dissolved in it, but it would if arising from carbonate of lime.

Pine Apples (*Verax*).—You have quite misapprehended the purport of our remarks, which of themselves point to the necessity for a special structure. We said, "those who can indulge in the luxury of a greenhouse can add that of a pine pit without any fear of adding to the labour of the establishment in any sensible degree." Pines and geraniums must *not* be grown together, at least not in the same temperature through the season. Grapes may be grown with geraniums; the vines, of course, confined to the rafters. In our past columns you will find plenty of advice, and much more is in contemplation.

Tillandsia Stricta (*W. Rayner*).—You wish to know how to strike a sucker of it; that is, to cause it to put forth roots. The best way to accomplish this is, first, trim off the short, rough leaves, and cut off the bottom straight across; then well drain a five-inch pot with broken potsherds; place a little fibrous peat over the drainage, and fill the pot to within one inch of the top with very sandy, fine peat; the remaining inch fill with pure white silver sand; give a gentle watering with a fine-rosed watering pot, let it stand a few minutes, and then insert the sucker, giving more water to close the sand about it. It should now stand an hour or two in the stove to become dry; then cover it with a clear bell-glass, fitting it inside the pot, rather pressing it into the sand. Set it where it will have a little bottom heat, and with moderate care it will soon strike root. Remove the glass an hour or two every day for a week, after which it may be left off entirely. You may then take it up, and wrap some moss round the roots and part of the stem, and hang it up in the stove, where it will soon produce its beautiful blue and scarlet flowers. This is the gem of this genus of plants, and is very rare.

Young Dendrobiums (*Ibid*).—Young shoots of Dendrobiums, when first planted in a pot, should have a watering to settle the earth or peat, but none afterwards till they have put forth roots and shoots considerably. If put on blocks, they will require syringing once a week during winter, and almost every day in spring and summer.

Hardy Orchids (*F. Lawson*).—You ask for a list of 12 or 20 orchids, comparatively hardy, free flowerers, and moderately cheap. Mr. Appleby will comply with your request in his contribution next week, if possible.

Mr. Grieves' Pansies (*G. J. Bell*).—Mr. Appleby informs us that he took down the names and descriptions of Mr. Grieves' pansies from his own mouth. If there is any mistake, he does not consider he is to blame. Mr. A. was not informed what the price would be. Perhaps Mr. Grieves will think it worth his while to advertise, or send a corrected description of them, which we shall have great pleasure in inserting.

Saving Seed of Cabbage and Kohl Rabbi (*P.*)—You may plant these out in some open corner of your garden, without cutting them or stripping off their leaves; but if you grow them in the same garden, or within half a mile of each other, the bees will be liable to hybridise them, and spoil the stock of both.

Asparagus Sowing (*Ibid*).—You may make the bed according to former directions as if to plant its roots; and then early in March sow the seeds by means of the dibble, about an inch deep, two in each hole, and a foot between every two holes. Every second one may then be removed, and the seedlings left allowed to grow on where first raised.

Grass for Open Lawns (*Verax*).—The best seeds for sowing these are the following. The quantities are for an acre, and to be all mixed together:—Crested Dogs-tail, 6 lbs.; Hard fescue, 20; Fine-leaved fescue, 2; Wood meadow grass, 2; Common meadow grass (*Poa trivialis*), 2; Creeping white clover, 8; Smaller yellow trefoil, 3. Your other question next week.

Raspberries (*J. M. U.*)—Your raspberries should have been planted in November, and not in March, to give you a chance for a crop this year. Shorten your canes, and give them a good manuring with well decomposed dung. You will probably have a crop from your autumn-bearing next year. If your soil is dry ,put mulch upon the surface, over the roots, next March, keeping it there, and giving water in dry weather during the summer.

Grape Vine Planting (*W. S. H.*)—Now is a good time; you will have seen what Mr. Errington says upon the subject.

Decayed Tanner's Bark (*Stanley*).—We never heard of this causing canker if used as a manure, and do not believe it will. We should use it without hesitation as a manure for a heavy soil.

Horticultural Exhibitions (*A Clerical Subscriber.*)—We propose noticing those you allude to next year. To notice both is a needless occupying of space, the flowers at each are so nearly the same. Your suggestion about *My Flowers* has been long under consideration.

Taylor's Improved Amateur's Hive (*Clericus Devoniensis*).—This can be had of Messrs. Neighbour, in Holborn. Do not wipe your *apples* before storing, or whilst in store. The glutinous exudation dries upon them, and helps to preserve them.

Skeleton Leaves (*Spaldinensis*).—This does not come within our purpose. A work will shortly appear in which we shall give such information. See the advertisement of The Domestic Economist in our paper to-day.

Sour Krout (*A Subscriber*).—Never mind the mouldiness outside your lid; it will not injure the cabbage within, which you say is quite clean and free. Sprinkle salt thickly over the top of the cabbage, and put on the lid, and disturb it afterwards as little as possible. There is no reason why the mouldiness should not be scrubbed off at the same time.

List of Plants (*Constant Reader*).—Pray refer to our indexes, which may be had of *both volumes*, and you will find all that you require. To do all that you ask for would occupy half of an entire number.

Heating Greenhouse (*Captain F.*).—You may heat your greenhouse opening from your drawing-room, according to the plan described at pages 119 and 120 of our first volume. The flue need not go all round the house. You must ventilate by opening the top sashes, or by having a small window to open like a casement at each end, close to the roof.

Names of Plants (*H. Smith*).—Your No. 1 is probably *Cereus albispinus*, but from your drawing, or from the fragments of the other succulents, it is quite impossible to arrive at a certain opinion.

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WEEKLY CALENDAR.

M D	W D	DEC. 27, 1849—JAN. 2, 1850.	Weather near London.			Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
27	TH	ST. JOHN EVAN. Black diver comes.	T. 49—39.	W.	Rain.	8 a. 8	55 a. 3	5 0	13	1 26	361
28	F	INNOCENTS. Gray Goosander comes.	T. 44—39.	N.E.	Fine.	9	55	6 16	14	1 56	362
29	S	Velvet Duck comes. [to Tarn Id.	T. 44—30.	N.	Fine.	9	56	rises	●	2 25	363
30	SUN	1 S. AFT. CHRISTM. Eider duck comes	T. 40—29.	N.E.	Fine.	9	57	5 a. 33	16	2 54	364
31	M	Silvester. Geometra incompletaria Moth	T. 40—30.	N.E.	Rain.	9	58	6 48	17	3 23	365
1	TU	CIRCUMCISION. Redbreast sings.	T. 33—19.	E.	Fine.	8	IV.	8 8	18	3 51	1
2	W	Lime Hawk Moth's Grubs found.	T. 29—20.	E.	Fine.	8	0	9 25	19	4 19	2

ST. JOHN, the apostle and evangelist, "one of his disciples whom Jesus loved," was a son of Zebedee and Salome. John was constantly distinguished by his Divine master shewing him special marks of regard. Whenever a select number of disciples accompanied our Saviour John was always of the number; at the Last Supper he was leaning on the bosom of Jesus; he was at the foot of the cross, and received from his dying Lord the injunction to regard His mother as his own. "From that hour" John took Mary to his home, was specially noticed by Jesus after his resurrection, evangelized in Syria and Asia Minor, resided during the late years of his life at Ephesus, and died there, A.D. 100, aged 94 years. Deep affection for his master, and for his brethren in Christ, characterised his nature and his writings. In death as in life his great theme was, "My children, love one another."

INNOCENTS' DAY, OR CHILDERMAS.—On this day is commemorated the murder of the infants at Bethlehem by the order of Herod. In our last year's notice of this festival we stated that the Papal Church perform masses upon this anniversary for the repose of the souls of those "Innocents," on which statement we have received a note pointing it out as a mistake. Our correspondent says—"Roman Catholics do not pray for the repose of the souls of *martyrs*, nor say masses for that purpose. It will, perhaps, also occur, on reflection, to the writer, that no class of Christians would deem it necessary to pray for the souls of children under two years of age, even if they were not martyrs. The Collect used by the Established church on this occasion will be found to be a paraphrase of the prayer before the Epistle and Gospel for that day in the Roman Missal, which latter are identical." In the "Calendar of Superstition" Brand tells us this day is of most unlucky omen. None ever married, put on a new suit, pared his nails, or began any undertaking, on Childermas Day. On account of this superstition, the coronation of King Edward IV. was postponed to the day following; and Addison, in the "Spectator," alludes to it when he makes a mother say that her child "shall not go into join-hand on Childermas Day."

METEOROLOGY OF THE WEEK.—The average highest temperature of these seven days during the last twenty-two years is 42.5°, and the average lowest temperature 27.1°. The greatest heat during the time was on the 1st of January, 1840, the thermometer then indicating 55°; and the greatest cold occurred on the 1st of January, 1837, when the mercury fell to 12°. The number of days on which there was rain is only 56, and of fine days 98.

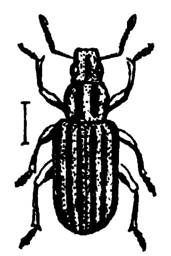
NATURAL PHENOMENA INDICATIVE OF WEATHER.—*Flora's Clock*, or the *Dial of Flowers*, is the name by which is included all the flowers either opening or closing at particular hours of the day. Some flowers open to meet the dawn; others, like the *water-lily*, do not expand until noon; a third group, like the *Evening primrose*, unfold their petals as the sun sets, and close them during the time of his greatest power; whilst the *Night-blooming Cereus* blooms only during the hours of darkness; but the greater number are like

> The *marigold*, that goes to bed with the sun,
> And with him rises weeping.

Some close in every kind of weather at mid-day, and on this account the *Goat's Beard* is often called "John-go-to-bed-at-noon;" and at the Cape of Good Hope the "four-o'clock flower" is the "Forked Marvel of Peru," which closes at that hour. The flower of the *Garden lettuce* opens about seven, and shuts about ten. We have no space for enlarging our catalogue, but we will say with Mrs. Hemans,

> "'Twas a lovely thought to mark the hours,
> As they floated in light away,
> By the opening and the folding flowers
> That laugh at the summer's day.
>
> Oh! let us live, so that flower by flower,
> Shutting in turn, may leave
> A lingerer still for the sunset hour,
> A charm for the shaded eve."

INSECTS.—Every gardener must have observed the edges of the young leaves of his peas, and sometimes of his beans,



eaten away in scollops, or semicircular pieces. This is often done by the *Sitona tibialis*, but still more frequently by another of the short-snouted beetles—the Lined Weevil, *Sitona lineata* of some naturalists, and *Curculio lineatus* of others. In Scotland it is commonly called "the Cuddy," or Donkey, from its grey colour. In our drawing it is magnified, but the line by its side shews the natural length. The whole body is grey, and marked with black lines; the antennæ reddish; the eyes black. Mr. Spence found five or six upon a pea seedling. They survive the winter sheltered beneath moss, &c., and in bad weather at all seasons retire under stones, only to reappear with the sunshine.

RANGE OF BAROMETER—RAIN IN INCHES.

DEC.		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
27	B.	30.121 30.084	29.661 29.321	30.438 30.412	30.038 29.998	30.100 29.788	30.494 30.396	30.225 30.204	30.103 30.036	
	R.	0.02	0.01	0.03	—	0.17	—	—	0.30	
28	B.	30.063 30.054	30.144 29.929	30.498 30.476	29.944 29.906	29.805 29.471	30.499 30.432	30.195 30.182	30.166 29.985	
	R.	0.02	—	—	0.15	0.16	—	—	—	
29	B.	30.078 30.035	30.174 30.112	30.454 30.311	29.932 29.910	30.019 28.700	30.505 30.444	30.094 29.740	30.180 30.149	
	R.	0.05	—	—	0.15	0.06	—	0.17	—	
30	B.	30.166 29.927	30.215 30.161	30.278 30.195	30.008 29.951	29.968 29.644	30.573 30.552	29.856 29.712	30.171 30.084	
	R.	—	—	0.02	—	0.02	—	0.30	—	
31	B.	30.211 30.187	30.178 30.046	29.979 29.664	30.105 30.067	30.106 29.465	30.540 30.434	29.854 29.817	30.126 30.110	
	R.	—	0.02	0.30	—	0.44	—	—	0.01	
JAN. 1	B.	29.942 29.882	30.197 30.171	30.257 30.131	29.606 29.562	30.146 30.121	30.051 29.692	30.311 30.150	29.846 29.807	30.179 30.144
	R.	—	—	—	0.43	—	—	—	0.22	—
2	B.	30.086 29.816	30.170 30.053	30.086 30.017	29.898 29.485	30.061 30.008	30.475 30.190	29.981 29.820	29.891 29.783	30.124 29.833
	R.	0.15	—	—	—	—	—	—	0.01	—

RESUMING our observations on the scientific Principles of Gardening from where we left off at p. 59, and continuing our notice of the phenomena of the *germination of seed*, we will next remark, that, as we have seen that heat and moisture are necessary for that commencement of growth, so now we shall find that the presence of one of the constituent gases of the atmosphere, oxygen, is also essential to germination. Ray proved that lettuce seeds will not germinate in the exhausted receiver of an air-pump, though they did so when the air was readmitted; and though the experiments of Homberg throw some doubt upon this conclusion, yet it was fully confirmed by the researches of Boyle, Muschenbroek, Boerhaave and Saussure, for they showed that Homberg must have employed an imperfect apparatus, and their experiments embraced many other seeds than those of the lettuce. So soon as pneumatic chemistry demonstrated that the atmospheric air is composed of several gases, viz.—

Oxygen	21
Nitrogen	79
	100

With about one per cent. of aqueous vapour in the driest weather, and about one part in every thousand of carbonic acid gas, the question then arose, Which of these gases is necessary for germination? and Scheele was the first to demonstrate that it is the *oxygen*. Achard afterwards proved that seeds will not germinate in nitrogen, carbonic acid, or hydrogen gases, unless mixed with oxygen; and though Carradori doubted the correctness of his experiments, his doubt was shown to be groundless by the more accurate researches of Gough, Cruickshank, Saussure, and others.* Senebier carried his experiments still further, and has determined that although seeds will not germinate in an atmosphere not containing at least one-eighth of its bulk of oxygen, yet that the proportion most favourable to the process is about one-fourth. Germination will proceed in an atmosphere of pure oxygen, but not so readily as when it is mixed with other gases. The same phenomena attend the incubation of eggs—they will not hatch in the vacuum of an air pump, nor will the process proceed satisfactorily in any other mixture of gases than atmospheric air.

It is necessary that the oxygen should penetrate to the cotyledonous, or inner, parts of the seed, as is evident by the changes which take place during germination; and it is further proved by experiment. When healthy seed is moistened and exposed in a suitable temperature to atmospheric air, it absorbs the oxygen only. This power of separating one gas from the others, appears to reside in the skin of the seed, for old seeds lose the power of absorbing the oxygen, and consequently of germinating; yet they will frequently germinate if soaked in a solution of chlorine in water—a gas which has the power of attracting hydrogen from water, and others of its compounds, and releasing the oxygen, doing so in the case of seeds within their skin, as well as withoutside. Humboldt and Saussure have also shown that the application of chlorine to seed accelerates its germination, and cress seed, which, under ordinary circumstances, requires some days to complete the process, they found effected it in no more than three hours. The late Mr. George Sinclair, author of the excellent *Hortus Gramineus Woburnensis*, informed us that he employed chlorine with singular success. He obtained it by mixing a tablespoonful of muriatic acid (spirit of salt) with a similar quantity of black oxide of manganese, and half a pint of water. After allowing the mixture to remain two or three hours, the seed is to be immersed in the liquid for a similar period, and then sown. Another, and, we consider, the most eligible mode of applying the chlorine, was also suggested to us by the same distinguished horticulturist. In this way he said he made tropical seeds vegetate, which refused to germinate by other modes of treatment. He placed the mixed ingredients mentioned above in a glass retort, inserting its bulb in the hot-bed, and bringing its beak under the pot in which the seeds were sown connecting it with the draining aperture of the pot. The chlorine gas is gradually evolved, passing through the earth of the pot to the seeds, accordingly as the heat required for the different species induces.

This absolute necessity for the presence of oxygen is a reason why seeds will not germinate if buried beyond a certain distance from the earth's surface; and why clayey soils often fail of having a good plant, an impervious coat of the clay enveloping the seed, and preventing the air's access.

M. Rurger found that seeds of rye buried one inch below the surface had their leaves above it in eight days and a half, whereas those at a depth of six inches, had only just sprouted at the end of twenty-two days. But too deep sowing inflicts another injury; though it be not at such a depth as to entirely prevent germination, it so consumes the matter of the seed in forming the useless elongation of stalk necessary to bring the leaves above the surface, that all further progress in vegetation has been prevented. M. Burger found that rye seeds, sown five inches and a half deep, forced their blades to the surface in seventeen days and a-half, but these remained green only for six days, and then withered; and that, in every instance, the most shallow-sown seeds produced the most stalks. I have observed the same in the case of kidney beans, Windsor beans, and peas of various varieties; those seeds buried one and a half inch below the surface, invariably grew higher, and were more prolific, than those buried at double or even greater depths.

From Saussure's experiments, we learn that weight for weight, wheat and barley during germination absorb less oxygen than peas, whilst these consume less than beans and kidney beans. This explains why, in proportion to their size, the two first may be sown at a greater depth below the soil's surface than the three last named, without vegetation being prevented.

It is chiefly the want of a due supply of oxygen that forbids seeds germinating which are buried at great depths; seeds thus deposited, or similarly excluded from the air in the Egyptian mummy cerements, will often retain their vegetative power for an apparently unlimited time. Hence, earth taken from far below the surface will often become covered with charlock. This is an oily-seeded plant, and such seeds, when thus excluded from the air, retain their vitality most pertinaciously, for reasons already assigned.

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* Although seeds will not germinate in an atmosphere of nitrogen, yet they all absorb a small quantity of this gas when germinating. It is a constituent of most young roots, especially of their spongioles, or extreme points. There is reason to believe that ammonia is formed during germination, and that it acts as a stimulant and food to the young plant. Seeds containing nitrogen germinate more rapidly than seeds of the same genus which do not contain this gas.

The atmosphere contains rather more than one-fifth of its weight of oxygen gas, and this is the proportion most favourable to the germination of the majority of fresh seeds. Indeed, few seeds will germinate when this proportion is much reduced. Radish seed refuses to do so when it amounts to no more than one-fortieth part, and lettuce seeds require in it at the least one-sixth, when it amounts to only one-eighth, they refuse to germinate. This is a reason why, of all kitchen-garden seeds, the lettuce requires the most shallow sowing. So far are plants, at their first germination, from being benefitted by the application of stimulants, as is supposed by the advocates of those menstrua, that, if the air supplied to them during that process is contaminated by stimulating vapours, such as that of sulphuric æther, camphor, spirits of turpentine, or ammonia, germination is always, in some degree, retarded and injured. Old seeds are alone those which require the additional stimulus of more oxygen to enable them to germinate, and this is most readily afforded by moistening them with a solution of chlorine, which slowly extracts the hydrogen from water, and sets at liberty its oxygen within the integuments (skins) of the seeds.

How oxygen operates in aiding the seed to develop the parts of the embryo plant we cannot even guess—we only know that most seeds have more carbon (pure charcoal) in their composition than other parts of their parent plants; that the oxygen absorbed by the seeds combines with a portion of that extra carbon, and is emitted in the form of carbonic acid. These are the attendant phenomena, but we can penetrate the mystery no farther.

We have just had placed before us a series of papers for folding up flower seeds, which are particularly useful, and, therefore, deserving of general patronage. At present, when a packet of seeds is purchased, the shopman does no more than enclose it in brown paper, and write upon it (not always in the most decipherable of characters) the name and quantity. In place of these brown-paper inutilities, there is now offered to the trade a complete series of white papers, of the form and size most desirable, for enclosing flower seeds, with the name, and other particulars useful to be known by the purchaser printed upon them. For example—

Viscaria oculata (Dark-eyed Viscaria).

Nat Ord, Caryophyllaceæ.—Native of Algiers.—Cult. 1843.—Annual; 1½ ft., branching fl., rose, dark centre; July and August, *Culture*.—A neat plant for groups and mixed borders. Sow in March in gentle heat, plant into small pots, and transplant to the open ground the end of April; and for succession, in open ground in March and June. Rich light garden soil.

These labels being prepared by Mr. Moore, Curator of the Botanic Gardens, Chelsea, and by Mr. Wm. P. Ayres, of Blackheath, are to be relied upon for correctness, and we recommend purchasers to obtain their seeds packed in these useful envelopes.

THE FRUIT-GARDEN.

The Cucumber: Preparation of Dung for Beds.—This, although generally classed with vegetables, or, indeed, with salads, yet maintains a position amongst our fruits; although a kind of anomalous one. As our worthy coadjutors do not seem to have touched on the culture of these for early work, we hope to be pardoned for calling the attention of the amateur, and those who garden on a limited scale, to some preliminaries necessary in order to obtain them early, and with certainty.

We shall not say anything about hothouse cucumbers in this paper, believing that the majority of our readers still grow them on the old-fashioned dung-bed, against which there exists little objection, except that it is a monopolism of labour as well as of fermenting material; otherwise it is well suited to the habits of the cucumber.

For our part, we would not have a garden establishment, of any repute, in the kingdom without a cucumber house (although it were only a few yards long), heated by hot water; believing that such would in the end be much more economical, and, certainly, more productive; for a house of the kind, properly planned, will produce cucumbers all the year with comparatively little trouble. But of this more by-and-by.

Preparing the Dung.—We will begin, then, with the fermentation of the dung; and on this, simple as it may seem, much of the success depends at a very early season. Your dung must be "sweet," says old blue apron; and very correct the opinion is. New dung from the stable door, as is well known, contains a vast amount of hurtful gases, which, as to cucumber culture, must be dissipated by fermentation, or, as the old gardeners used to call it, "sweating." Space will not permit us to show how this takes place; we must merely be content with the fact, that dung thrown into a body will ferment, or heat; and that the intensity of the heating is in proportion to the bulk of the material, the freshness of it, and its character as to the diet of the horses, or other stock. On the latter point, we merely mean that the higher the quality of the food the greater the fermentative proportions, and *vice versa*. We all know that leaves—ordinary tree-leaves—are excellent material for building hot-beds; we stay not here to discuss their character, but merely to recommend their use in a considerable proportion; and to observe that if such are to be mixed with the dung it should be when the dung has become sweet, and this will be at the last turning; for the dung at this early period will require turning some three or four times.

We will now suppose a heap of dung drawn fresh from the stable door for a frame of three lights—say three or four one-horse cart-loads. When leaves are to be mixed with the mass alternately we prefer shaking out a portion of the mere droppings, as their powerful and violently heating character is averse to durability in the mass—the durability of the heat being much to be desired. The remainder is thrown into a compact heap to ferment, which will be the case in a day or two; but, if cutting winds prevail, means must be taken to keep the heat equalized, for, like a bonfire, the wind will drive the heat towards the opposite side. A little loose fresh litter will accomplish this, and, if such be scarce, a few stakes may be thrust into that side, and the litter suspended on the stakes, or a net or two may be used. It is astonishing what a small matter not in *close* contact with the mass will prevent the injurious effects of stormy weather in this respect, especially if carried higher than the body of the manure, or, in other words, high enough to carry the wind over it. As soon as the heap becomes heated and reeks considerably it must be turned with forks. We deprecate the practice of letting it remain until it is, what is termed, "burned"—that is to say, become whitened and dry; those who do so entirely forget that the principal object is to dissipate the noxious gases (which arise chiefly from the urine contained in the mass) without too much breaking down the material. As before observed, durability is requisite in the bed at this early period, and we need scarcely say that hurried decomposition is averse to that principle. In turning it, every lock or tuft should be shook to pieces, or rather divided, like tedding hay; this is most important in the first stages. Care should be taken, moreover, that the outer part be exchanged for the middle of the heap. If any huskiness is perceived, either at this or any of the subsequent turnings, water must be liberally applied—as much as will keep the whole mass black; for water is, after all, the great purifier. The second heating will not be quite so rapid, for a good part of the fiery gases will have escaped during the first stage; nevertheless, enough will remain to render the dung totally unfit for early forcing. In about a week, or perhaps less, another turning will be requisite, proceeding precisely as before, and still using a screen of any kind, provided cold winds should prevail. It is probable that by this time more water will be requisite than before. We would, however, as before observed, turn more frequently, in order to prevent "burning." We have now described two "turnings," subsequent to the first throwing of the dung together, and many persons, we may observe, will venture to build the bed soon after. Let us, however, persuade all beginners to give *at least* another turning; for every turning purifies the fermenting mass still more and more. In little more than a fortnight, the whole of the turnings may have been carried out. It may then be observed, that if leaves are to be blended with the mass one turning less may suffice. In using the leaves, equal portions may be blended, provided they are of the oak or beech; but if of the soft-wooded trees, there should be nearly two parts of dung to one of the leaves for early forcing. When the dung is fit for building the bed it will be, what practical men term, "sweet," a term which, at first thought, seems oddly enough applied to manure; nevertheless it is, we conceive, justly applicable, for well-worked dung is almost as sweet as new-made hay. It has a scent closely approximating that of mushrooms; and we need scarcely add, that few persons would term the scent of mushrooms nauseous. The mixture then, after being blended carefully together, (and too much pains cannot be taken to mix the dung thoroughly with the leaves) will now be fit for building; and we may as well offer a little advice about this part of the process.

Building the Bed.—The great thing to be avoided in early cucumber forcing is, what practical men term "burning;" this we before described as appertaining to the dung-heap. The same may take place in the bed, if precautions be not taken. Of course, when the plants are planted out in the bed, the bottom heat must be controlled within certain limits, or the plants are at once destroyed. Ninety degrees is the maximum heat which the plants will endure at the root; indeed, this is by no means safe, and certainly somewhat unnatural to permit so large an amount. Now, in order to avoid this burning, many expedients are resorted to. Some persons form the body of the bed of brush wood; others form a hollow chamber beneath, by posts and slabs, and many other expedients have been resorted to, according to the fancy of the operators, all based on the principle of permitting much depth for powerful linings, when necessary, without keeping up an unnecessary amount of dung All these modes are respectively good, other things being properly carried out. As, however, many amateurs cannot avail themselves of brush wood and slabs without unnecessary expense, we will point to a plan which will enable the operator to build a safe bed by means of well worked dung alone. The base of the bed being marked out on a dry plot of ground, where water *cannot remain*, any dry unfermentable rubbish of an *open* character, may be placed in it for nearly a foot in depth. If sticks or stones are at hand, such will be as good as any thing. This done, firmly on a base or foundation, nine inches wider than the frame, all round, the building by dung may proceed. After one foot of dung is properly placed, or the bed a foot higher, let the situation of the future hillocks in which the plants are to be set be correctly ascertained, and on the centre of each place a very large garden pot, of at least twelve inches diameter at the top, the bottom being purposely punched out; small butter firkins, without bottoms, or even large chimney-pots, may answer: in fact, any thing cylindrical and somewhat conical. This settled, continue the building of the bed to the desired height, filling the inside of the pot or vessel as the building proceeds with any inert or unfermenting material of a very porous character; indeed, brickbats, or broken masses of stone, are excellent. As the building proceeds, they, the vessels, must be drawn upwards, taking care they are kept nearly full of the above material; and when the bed is of the desired height, the vessels may be removed altoaltogether, when, of course, the centres before alluded to, will be a dead unfermenting mass, serving thus to prevent the entire cooperation of the whole mass of manure, and guaranteeing the plant a temperate substratum, althoug surrounded, it may be, with materials having a tendency to burn. A bed in January should be nearly five feet high at the back, and about four feet in front, and about a foot in height, or nearly so, may be given up monthly, as the season advances. As soon as the bed is built, some long litter should be placed snugly around it to ensure speedy fermentation; and, as soon as the bed is becoming hot, water must be liberally applied. This will prevent burning, and will carry entirely away any remaining effluvia of a noxious character.

Earthing the Bed.—In a week or ten days it may be got ready for the plants, and some mellow soil, of a dark and soft character—a mixture of old vegetable soil or humus, and heath soil—will be best for an early period.

We have said nothing about the seed-bed, for the principles of fermentation here laid down will serve both purposes. It will nevertheless be necessary shortly to offer advice about the subsequent management of the fruiting-bed. R. Errington.

THE FLOWER-GARDEN.

Mild Seasons.—It has often been observed by gardeners that when a long stretch of mild, open weather follows on from the end of autumn down to Christmas, that before the end of the following month of January there are more half-hardy plants injured or killed by a moderate frost, than are usually destroyed when they are caught by earlier frosts and a hard winter; and the reasons are obvious enough. The mild muggy weather keeps plants in a half dozing state, as it were; so that the first hard frosts in January, or later, overtake them in a soft, unripe condition, in which state all plants are more liable to injury by frost. This reminds us that all planting should be got through earlier; and such plants as are still in progress ought to be pushed forward on all favourable opportunities. Half-hardy things, that were protected or thatched over in November last, should also be examined, and some additional coverings should be laid on for the next two months; but first let all the old covering be removed, and any dead or damp leaves be cleared out, and if the soil is wet scrape off an inch or two of the surface all round your plant, and replace it with dry coal-ashes. Let the plants remain uncovered for some hours to dry, and then add dry straw, fern, or whatever the protecting material may be, letting that part of it which is to be next to the plants be quite dry, and then the old covering may do round the outside; though, if the whole covering is dry, it will be more safe. Always, when a week or a few fine dry days occur in winter, those who cover up half-hardy plants should take advantage of them to open the coverings and examine the plants, for when they are long confined under a damp, close covering, they suffer as much from damp as they would do from a moderate frost; and a little breathing time, with a fresh covering of dry materials, are very agreeable to them; and they stand more in need of it in a moist, mild winter than when the weather is more dry and severe with frosts.

Shrubbery Dressing.—The common practice of deep digging amongst shrubbery plants is found to have just the contrary effect of what it was thought to have some years since, and most gardeners of the present day have given up the practice altogether; and all the stirring they give to the soil is done from time to time by the hoe during the growing season of weeds; and early in winter, when all the leaves are down, they are raked into little heaps and buried in the openings between the plants; and in digging the holes gardeners often meet with the leaves, weeds, and rubbish, which were buried the year before quite in a rotten state, and netted through with young roots. All this is brought up and spread over the new raked surface, and a beautiful compost it makes; the roots of the adjoining shrubs and trees are thus annually pruned so far, and a fresh lot of green compost laid beside them to be, in its turn, subjected to the same process.

Hardy Annuals.—In February or March the surface of a shrubbery thus treated is an excellent place to sow hardy annuals on, there being only an inch or so of loose soil on the surface, and, that composed of rotten vegetable mould, the roots of the young plants cannot strike downwards, but spread sideways among the compost, and then they are very easily transplanted into the beds any time in April, or in the beginning of May, thus allowing plenty of time for spring-dressing the beds, or for the display of bulbs, for it is thought extravagant now-a-days to sow a crop of annuals on a bed at once, and let it remain without anything else till the annuals are done flowering. Besides, should some of the seeds fail, or if part of the young seedlings damp off or are destroyed by grubs or slugs, the bed must be made good by transplanting some from where the plants stand thickest, and then the bed must look patchy for the rest of its season; so that there are more advantages than one in not winter-digging among trees and shrubs, but, of course, the greatest benefit arises from not cutting through the surface roots.

Pruning Shrubbery.—Then, as to winter-pruning a shrubbery, the process was much better expressed in the old term "dressing," for that included the whole business of clearing the surface, rooting up suckers, shortening-in straggling boughs, so that no two plants interfered with one another, and whenever they did one was marked out for removal into another place, and this one might still remain for a year or two longer by keeping its head well reduced by the winter and summer pruning, until its fellow occupied nearly the whole space which formerly sufficed for the two. *Evergreen bushes* which grow close, as the laurustinus, should be so pruned that the lower boughs are the longest; and this may be easily effected whatever the natural shape of the plant may be, whether round, spiral, or spreading, by stopping such shoots as grow longer than those below them. The common *Alaternus* is a fast-growing bush, which soon gets naked below unless attended to in this way, and one of the most willing to yield to the pruner; and is an excellent plant to form into a half standard. The *Phillyrea* is another of the same habit, but not so fast a grower, but if left to take its natural course will soon grow out of shape; the leading shoots of all the main branches should be stopped, more or less according to their lengths, to induce an equal growth in all parts of the head. All upright-growing plants, like the *Cypress* and *Arbor vitæ*, require close attention to set them off properly when young; if they once lose their leading shoot, or if they are growing in deep rich soil, they produce a number of leaders, or contending shoots, and if these are allowed to go on unchecked for a few years they will become very troublesome in time of snow, or even in very wet weather. The weight on the leaves causes the different leaders to open out sideways, and unless they are tied up with cords or copper-wire they soon split, or grow so ragged, as to lose all the beauty of their natural character. Even the stiff, rigid *Irish Yew* will get deformed in time, after the same manner, unless it is carefully reared from the first and confined to one principal leader. I know what might thus be very beautiful plants of all these, but having been neglected when they were young, all that can now be done to them is to keep them tight-laced with wire fastenings all the way up, which is only an apology for good management. On the other hand, I could refer to others of the same species whose side branches are as stiff and close as those of a well-kept thorn hedge, and this was brought about by pinching out the points of all the side-branches as soon as they were six inches long, and leaving the centre shoot or leader to grow on without any check or stopping. This is done regularly during the growing season. As fast as the side shoots grow to the specified length, the tops are nipped off, and after a few years these stumps will get so bushy that they must be thinned by cutting in some of them close to the main stem; and after such trees attain to nearly their full size, these side branches may be allowed to grow out freely, so that no leaders are allowed to form. The *Cypress* and the *Deodar cedar* from India, as well as some other trees, grow with their leading shoots hanging down on one side, and many persons think this a natural defect, and so will have them tied up to sticks, thinking they are assisting nature, when they are just doing the reverse, or, at any rate, have their labour in vain, for such trees never fail to right themselves, and take the upright position as they become ripe and hard.

Silver Cedar.—Speaking of cedars, reminds me of some information I received this last autumn about cedars from a courier, a native of Athens, who was in the suite of a nobleman who was here on a visit. He was a most intelligent traveller, and had a natural turn for scientific pursuits; he had been up several times into Nubia, past the cataracts on the Nile, and through the different routes from Cairo through the Arabian Desert into Palestine; he gathered cones at four different times of the ancient cedars on Mount Lebanon, one of which, a very small specimen, I obtained from him. In 1844 he was in Algiers, and mixed with the French military in one of those dreadful campaigns against the Arabs; and at a place five days' journey inland from Algiers the French routed a large camp of Arabs, and took their cattle and sheep, of which they stood much in need for rations, but there was not a bush or tree within miles of them to make fires to cook their spoil with; so they broke down the poles and sticks of the Arabs' tents, and he says the whole air was perfumed by the burning of these dry poles, which were made from the wood of the white cedar peculiar to the Atlas range, and as there have been some doubts raised in England lately about this cedar being different from the old cedar of Lebanon, I particularly inquired of him whether this was really correct or not. He made no hesitation in pronouncing the two cedars to be quite different. He visited a large forest of the white cedar growing on a lateral branch of low hills, which spread southward from the main chain of the Atlas, and about half way between Algiers and the Atlantic: and besides the silvery appearance of the under side of the leaves, he said that on all the trees rows of teeth passed along the upper side of the branches, standing erect like the teeth of a rake, and giving the whole head a very peculiar appearance. This part of his description I could not understand until I received one of the so-called teeth from him, which turns out to be the axis, or central part, of one of the cones; but whether the cones drop from the silver cedar in detached scales, as in the Balm of Gilead fir, or the whole cone at once, I could not make out. He found no cones under the trees, although he looked diligently for them, and the trees were so large and so difficult to climb, that he had to shoot off some cones with his gun. Seeds from these cones have vegetated in England, and the plants are now from a foot to 18 inches high—that is, in four seasons' growth. The nobleman in whose garden the plants have been reared, has since corroborated all these particulars, for he, too, saw the forest of white cedars on the Atlas, and also those on the Lebanon, and he adds, "when the wind moves the branches of the silver cedar, the silvery hue from the underside of the leaves is very conspicuous at a long distance." Now, if this should turn out to be only a well marked variety of the old cedar of Lebanon, it is very well worth inquiring after, and our nurserymen, who have connections in Paris, would no doubt hear more about it there; for I am told that a large quantity of seeds of it have been sent to France from Algiers, and I think there need be little fear in buying the plants as new and very distinct; indeed, the Horticultural Society have already distributed some plants of it under the name of *Silver cedar*.

D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

Raising Plants from Seed.—A correspondent residing in a retired part of the country, signing himself *Tyro*, states that, owing to the distance from a nurseryman, and the expense of carriage, it is impossible for him to obtain plants unless he raises them from seed, and wishes for a list of the hardy greenhouse plants and half-hardy plants that may be thus propagated, and then grown upon a stage under a veranda facing the south, with the advantage of a pit to winter them in. As our good Editor thinks that a short list would be generally useful, and our correspondent is in a great haste about the matter, we prefer adverting to it here, rather than in the column to correspondents, merely premising that those named are some of those we have observed seeding most freely in this country. Nice little plants of the most of them could be forwarded by post from the nurserymen; and thus several months, if not a whole season, would be gained at no great additional cost; but we know that many people, even in affluent circumstances, feel a peculiar pleasure in those plants that from first to last have been reared and attended to by themselves. The most of the following may generally be obtained from seedsmen:—

1. Shrubs: Acacia.—All the dwarfer kinds of this genus would be suitable for such a position and mode of culture, and some of the larger-growing ones, such as *Lophantha*, might be grown for the back of the stage, as the pinnated leaves are very pretty. Most of the family are chiefly distinguished for the clustered whorls of yellow male flowers—some plants possessing both the sexes; and others, again, being either wholly male or wholly female. *Soil:* peat and loam, increasing the loam as the plant gets older.

Coronilla—comparatively hardy; the greenhouse and frame species being natives of the south of Europe. *Soil:* similar to the above.

Cytisus.—All the greenhouse species, as well as *Genista canariensis*, have yellow flowers like the above, but mostly borne upon spikes. The foliage and habits of the plants are more elegant. The seeds will be all the better for being steeped a day in warm water before sowing them. *Soil:* peat and loam, increasing the latter as the plants get older.

Clianthus puniceus should be sown and grown in peat and loam, adding a little dung and some lumps of charcoal as the plant gets older. After the first or second season the plants should be forced along upon the one-shift system, otherwise the bunches of flowers will be apt to be small, and the leaves subject to red spider.

Chorozema.—All the species of this family are beautiful, some pre-eminently so—flowers, reddish and yellowish. Plants from seed are generally superior to those from cuttings. *Soil:* sandy, turfy peat, with a little turfy loam and charcoal for the more vigorous kinds, as the plants get well established.

Gompholobiums.—Natives of new Holland; flowers something similar to the above, mostly yellow. *Soil:* fibry sandy peat, with pieces of charcoal. Plants very impatient of too much moisture, or of a clogged sour soil; drainage and watering must therefore be carefully attended to. Oxylobium, Podolobium, and Platylobium, chiefly distinguished by the appearance and shape of the seed-pod, require similar treatment.

Diosma.—A genus of low evergreen shrubs, requiring peat and loam.

Erica (Heath).—Seeds of many species may be obtained. If sown in spring, and potted off late in summer, they are apt to go off in winter. It is generally deemed advisable to sow in August, and keep the young plants in the seed-pans, near the glass, and in an airy situation during winter, and placing them individually, or by threes, in small pots in the spring, re-shifting as they require it; keeping them in the pit for a couple of years, encouraging growth until September, and then using every means for ripening the wood, giving plenty of air, back and front, when the thermometer is from 35 to 40° in winter, though more sparingly in foggy weather. *Soil:* fibry, sandy peat, with pieces of charcoal.

Epacris.—Similar treatment will be required; the plants are hardier, and not so subject to mildew as the erica, but most of them would be inclined to bloom before they could be set upon the stage.

Azaleas.—The hardier ones may be treated in a similar manner.

Camellia.—Seeds of the single varieties may sometimes be met with, but they require the best part of two years to vegetate. A single camellia is far from despisable.

Lechenaultia requires similar treatment to a heath, only it likes a mixture of turfy loam with the peat, and should be grown fast on the one-shift system: unless the flowers are frequently picked off, the plants soon become exhausted.

Pimelea. A beautiful family of low shrubs, flourishing in sandy loam and peat.

To these may be added the greenhouse and frame species of the genera *Myoporum*, *Pittosporum*, *Eugenia*, *Pultenæa*, *Stylidium*, *Mahernia*, *Swainsonia*, *Goodia*, *Sutherlandia*, *Fuchsia*, all of which will flourish in peat and loam; the Fuchsia liking, in addition, as it gets older, a portion of dry manure, or copious manure waterings. With the exception of the fuchsia, some of which, and especially the beautiful *Fulgens*, will flower the first season; none other of the plants will be fit for the stage the first year, and many of the best not for two years. For sowing, a nice sweet hot-bed should be prepared in February; pots prepared, well drained, filled with suitable soil, in the manner lately recommended for calceolarias; plants shifted, as soon as they can be handled, into very small pots; stopped when a few inches in length, to make them bushy; encouraged by shifting, watering, and keeping rather close, to grow freely until autumn, and then ripened by giving more air; exposure to light, and withholding water; admitting plenty of air in favourable weather in winter; lighting a small fire in damp, foggy, or frosty weather; and, if that cannot be done, making sure of a dry, raised pit, as recommended last week. Many, if not all, of the plants referred to would be better in a shaded position during summer than exposed to the south on a stage, not because the plants will not stand the sun, but because the pots are apt to get so hot that the roots would be scorched. To remedy this, the pots should be set inside of larger ones, the space between being stuffed with moss, and this, too, will render less watering necessary. Syringing overhead, night and morning, in warm weather, will also be of service. The same system may be advantageously adopted with all pot plants in a similar position during summer; and if a little water stands in the pans below the pots, provided not high enough to reach the roots in the inner one, there will be no danger of stagnation, nor yet so much from dryness either in the soil or atmosphere.

2. Climbers in Pots for Trellises we can barely name. *Brachysema latifolia*, we fear, would be rather tender. Many *Kennedyas* would do well. These should chiefly be grown in sandy, turfy peat, with a little loam as the plants get older. The following require fibry loam, with a little peat, and pieces of charcoal to keep the soil open:—*Convolvolus*, *Tropæolum Canariensis*, &c.; *Sollya heterophylla* and *linearis*, *Billardiera scandens*, *Jasminum azoricum*, *odoratissimum* and *ligustrifolium*, *Tropæolum pentaphyllum* and *Lobbianum*, *Dolichos lignosus*, *Maurandya*, *Lophospermum*, *Eccremocarpus*, and *Passiflora Cærulea*.

3. Succulents.—*Cactus* (seeds from *speciosus*, *Jenkinsoni*, and *Speciosissimus*, may frequently be obtained), *Mesembryanthemum*, *Sempervivum*, *Crassula*, *Portulaca*, &c. &c. If the atmosphere is moist, the seeds will want little water until the plants are up. *Soil* should be light and sandy. In potting and repotting, add pieces of lime rubbish, broken bricks, and charcoal. The last-named are annuals, and very beautiful. Many of the others may be treated as annuals. The cactus, when it arrives at the flowering state, should, when done flowering, be transferred to the pit, pruned, encouraged to grow with manure watering, or surface dressing with manure; placed in front of a wall, to harden its wood, early in autumn; removed to the pit, and, as well as all other succulents, kept dry, and from frost, all the winter.

4. Shrubby Herbaceous Plants.—*Calceolaria*, *Cineraria* (see former papers), *Geranium*, *Oxalis Floribunda*, *Linum*, *Salvia*, &c., &c., mostly require light sandy soil, with a little peat, adding enriching matter as the plants get older. If sown in spring, in gentle hot-bed, will mostly flower in the end of summer and autum. If sown in autumn, will flower in spring and summer. The best varieties may be selected for cuttings, and seed again be saved.

5. Herbaceous Plants.—*Primula sinensis*, &c., *Commelina*, *Mimulus*, *Penstemon*, *Antirrhinum*, *Verbena*, *Tagetes*, *Anagallis*, *Trachelium*, *Petunia*, *Lobelia*, *Statice*, *Alonsoa*, *Kaulfussia*, *Agathæa*, &c., &c., and most of the half-hardy plants used for bedding-out, would answer well for such a position. Most of them would flower the first season, if raised in a hot bed in spring. The most desirable varieties may then be marked, cuttings taken, and young plants saved over the winter in the pit. Even with a few genera, such as *Cytisus*, *Fuchsia*, *Calceolaria*, *Cineraria*, *Geranium*, *Penstemon*, *Verbena*, and *Lobelia*, a fine show could be obtained in such a position all the summer, if the plants were well grown.

Bulbous Plants.—*Alstræmeria* (seed should be sown when ripe, as it keeps badly), *Ixia*, *Gladiolus*, *Anomatheca*, *Sparaxis*, *Witsenia*, *Wachendorfia*, &c., should be sown early in the spring, or, what will suit most of them better, in the beginning of September, and the plants kept slowly growing all the winter. Use light sandy loam and peat; withhold water as soon as the foliage decays, but keep the plants nevertheless exposed to the sun, to ripen the bulbs; repot in the end of autumn; place them in the pit, but give no water until they begin to grow. Do not plant the bulbs too shallow; regulate the depth by their size. R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

SECTION III.—THE PROPER AMOUNT OF HEAT, MOISTURE, AND AIR THE PLANTS REQUIRE AT ALL TIMES OF THE YEAR.—This section of orchid culture is of great importance to their successful growth. If it is neglected or carelessly attended to, all other cares which we have previously described, will be almost bestowed in vain. We entreat our readers, therefore, to pay particular attention to this section, and endeavour to carry out our instructions to the very letter, or, at least, as far as circumstances will allow.

This section naturally divides itself into four heads. 1st. Heat. 2nd. Moisture to the air inside the houses. 3rd. Watering with the garden-pot and syringe. 4th. Giving air.

As we intend our instructions to be full and explicit, so that there can be no mistake about these important matters, both to gardeners who may not have had much experience on these particulars, and to amateurs who may have had no experience at all, we shall descant upon each head more fully than we have hitherto done, though we run the risk of sometimes repeating directions we may have incidentally given in former numbers.

HEAT.—As orchids for the greater part are natives of the hottest parts of the globe, they require a corresponding temperature to be secured to them in our colder regions. To accommodate these warmth-loving plants, we build houses, and to give them light we use glass roofs. This material not only admits the rays of light, but also the rays of the sun which warm the interior of the house. This heat when thus confined is, during at least four months of the year, sufficient for these plants, and is, sometimes, even more, during the day, than they require. To moderate this excess of heat, and to prevent the rays of the great luminary of the day from scorching the leaves, we give air and use shades. But, though the sun, in general, will give us heat sufficient from the middle of May to the middle of September; yet during the rest of the year artificial heat to keep up the required temperature is necessary. There are several methods by which this may be accomplished. Now, orchids may be grown, and successfully too, at least, in a degree, by the old common smoke flue, provided the flues are well built and covered with deeply-dished covers to hold water, whilst the plants are growing. We mention this possibility of growing orchids in a house heated by such means, (to encourage amateurs who might wish to cultivate them, but cannot afford the more expensive, though by far the best, mode of heating by iron pipes and tanks filled with circulating hot water. A house built with brick walls glazed with cheap glass, and heated with such flues to hold a hundred of the best kinds might be put up in the country by common workmen, and all materials found for thirty or forty pounds, which is not such a very heart-breaking sum of money. The only difference in the expense between an orchid house and a common greenhouse, will be in the size of the fireplace, and the amount of fuel, with a little more cost in the dished covers. Those who have already a greenhouse, and would like to change their geraniums, calceolarias, heaths, camellias, &c., for orchids, would only have to rebuild the flues, put proper covers upon them, and enlarge the fireplace, to convert their greenhouse into a house for orchids. Do not, however, mistake our meaning. We do not recommend smoke-flues, excepting as of a matter economy in the first cost of the orchid house. A boiler and range of pipes (and tanks), for plants requiring moist air, is by far the best mode of heating for every kind of plant requiring artificial heat; but more especially for orchids. To heat a house with hot water of the capacity above mentioned, would cost at least half as much more. To such amateurs as can afford it, we would say, by all means heat with hot water in the manner described at page 64 of this 3rd volume. As is there stated, the size of the boiler and quantity of pipes and tanks required depends entirely upon the size of the house. The power of heating should be *more* than is required in ordinary winters in order to be prepared for those *very severe* ones that sometimes occur. It is always easy enough to give less heat in moderate weather by having less fire applied under the boiler. The degrees of heat required, we shall now give for all the year.

	FAHRENHEIT.			
INDIAN HOUSE.	Day with Sun.	Day without Sun.	Night.	Morning
Spring.................	75	70	60	55
Summer.................	85 or 90	70	65	60
Autumn.................	70	65	60	55
Winter	65	60	55	50
MEXICAN HOUSE.				
Spring.................	70	65	60	55
Summer.................	75	65	60	55
Autumn.................	60	55	50	50
Winter	55	50	50	45

Our readers will perceive that the lowest temperature at all seasons is in the morning; that is, before the fires are stirred. The heat in the mornings in summer will depend upon the heat of the atmosphere out of doors; the rest of the day may be regulated by giving air, which we shall allude to under the 3rd head of this section. The principle of having a lower temperature during the night is perfectly natural. The variations even in tropical countries in that respect is great. In the West India Islands the night air is comparatively cold, accompanied with a great fall of dew. This, though refreshing to plants, reinvigorating them, as it were, and enabling them to sustain the fierce heat of the sun, is very injurious to human life, so much so, that if a man unfortunately is exposed to its baneful influence by sleeping in the open air, it often proves fatal; whilst orchids are refreshed, and then send out their splendid flowers in great luxuriance. We must, therefore, imitate this kind of climate. Have great, or at least, greater heat during the day, and a lower temperature during the night; and syringe freely during the growing hot season,—of which, more anon.

A correspondent having requested a list of a score of easily-grown, freely-flowering, and moderately cheap orchids, that will flourish in a common stove, we shall fill up our remaining space this week by complying with his request; thinking, with him, that the information will be acceptable to many of our readers.

Twenty Orchidaceous Plants requiring Moderate Heat, and Otherwise easily Managed.

1. Acineta Barkeri (Mr. Barker's Acineta) Mexico; yellow flowers, requires to be hung up in a basket. Price 21s. for a strong plant.
2. Barkeria Skinneri (Mr. Skinner's Barkeria) Guatemala; rosy purple. See last week's number for the culture of this pretty species. Price 15s. small specimen; 42s. strong.
3. „ spectabilis (Showy B.) Guatemala; a beautiful species; requires hanging up in an airy part of the stove on a log. Very hardy. Price, 21s. small; 42s. strong.
4. Bletia Shepherdia (Mr. Shepherd's B.) Jamaica. This is a terrestrial species, requiring rest in winter. Grows best in a compost of loam, peat, and leaf-mould. Dark purple, very handsome. 10s. 6d.
5. Calanthe veratrifolia (Veratrum-leaved C.), pure white flowers, produced on a long spike, lasting a long time; a terrestrial species, requiring the same treatment as Bletia, excepting having a little water given to it even in winter. Price 10s. 6d.
6. Cattleya crispa (curled-flowered Cattleya). Rio Janeiro; sepals and petals white, labellum or lip with a splendid purple spot; pot culture. 10s. 6d. small; strong, 21s.
7. „ Mossiæ (Mrs. Moss's Cattleya). La Guayra; rose petals and sepals; labellum or lip yellowish, stripes upon a rose ground; a superb species; pot culture. There are several varieties. Price 21s.
8. Cattleya Skinneri (Mr. Skinner's Cattleya). Guatemala; rosy purple; best on a log close to the glass. Price 21s.
9. Cypripedium insigne (Noble Lady's slipper). Nepal; sepals and petals yellowish green, the upper petal deeply tipped with white, labellum orange, the outside of a rich brown; pot culture, in turfy sandy peat and loam. Price 7s. 6d.
10. „ venustum (Beautiful Lady's slipper), Nepal; handsome variegated flowers, and prettily mottled leaves; pot culture. Price 7s. 6d.
11. Dendrobium chrysanthum (Golden Dendrobium), Nepal. Basket culture. Price 15s.
12. „ nobile (Noble D.), China; sepal and petals flesh-coloured, tipped with rose, labellum yellowish with a dark purple spot; a truly handsome species; pot culture, easy to grow. Price, small 10s. 6d.; strong, 21s.
13. „ pulchellum (Pretty D.), Sylhet; small branching species, basket culture; sepals white, petal marked with a rose-coloured spot; labellum fringed and spotted with a large blotch of rose. Price 7s. 6d.
14. Epidendrum macrochilum roseum (large-lipped, rose-coloured Epidendrum), Guatemala; log culture; a beautiful variety. Price, 31s. 6d.
15. „ vitellinum (Yolk-coloured E.), Mexico. The whole flower is of a rich golden scarlet; log culture; cool treatment. This is a truly splendid species, but rather scarce. Price 42s.
16. Lœlia autumnalis (autumn flowering, L.), Mexico; equal in beauty to any orchid in cultivation; sepal and petals blush-deepening to rose, labellum white, tipped with rose; log culture.
17. Lycaste Skinneri (Mr. Skinner's Lycaste), Guatemala. The colours of this splendid species are so rich and varied, that it is almost impossible to describe them; the sepals are pure white, tinged with crimson at the base, the petals have more rose colour in them, lip covered with spots and stripes of the most brilliant scarlet or carmine; pot culture easy; requiring a cool treatment; well worth having. Price, small, 21s.; strong flowering plants, 42s.
18. Odontoglossum grande (magnificent tooth-tongue flower), Guatemala—well named. It is the butterfly flower trebly magnified. The flower is from five to seven inches across; sepals and petals yellow ground, barred with purplish brown like the back of a tiger, labellum delicate French white ground blotched with dark pink spots. The flowers are produced on long footstalks, sometimes as many as eight on one stem, and lasting a long time in flower. This is an accommodating plant, it will grow in a pot, in a basket, or on a log. Price, small, 15s.; strong, 25s.
19. Oncidium crispum (curled oncidium), organ mountains; large flower, rich brown, barred with brownish yellow; a handsome species; block culture. Price, 21s. small; 42s. strong.
20. Oncidium papilio (butterfly O.), Trinidad. The flower has a great resemblance to some gigantic butterfly; the flower stems rise to the height of two feet, and the flower sits upon them so like the insect that an ignorant person might be excused for mistaking them for a real butterfly; colour, rich brown, barred with yellow. Price, for strong plants, 21s.

Being confined to 20, we have necessarily omitted many splendied species. All the fine family of *Stanhopea* require more heat than a stove. Also the fine families of *Ærides*, *Vanda*, *Saccolabium*, and, in fact, all the Indian species that grow in the hot jungles of that country.

FLORISTS' FLOWERS.

We beg to refer our readers to our instructions in the last two or three numbers. These months may be denominated *protective*, as the great art of the florist is now to protect his plants, whether in frames or in beds, from this adverse season. As we have frequently stated, the great object is to preserve these favourites from damp, insects, and over excitement, we had prepared a few remarks upon shading, when such plants as auricula, polyanthus, carnation, &c., had been accidentally frozen; but our good friend, Mr. Fish, has anticipated us, and we cordially agree with all his excellent remarks on the subject.

T. Appleby.

THE KITCHEN-GARDEN.

Routine Work.—At this season all *cauliflowers* young *carrots*, *beans*, and *peas*, that are above ground, as well as *lettuce plants*, late *endive*, young *radishes*, &c., should be kept tolerably dry, and also clear from decayed leaves. Abundance of air should be given on all favourable occasions, to keep them in a healthy and vigorous state, and dry dust should be occasionally applied, not only for the same purpose, but also on account of its beneficial influence in frosty weather, when such crops are under temporary shelter only. *Radishes* sown in frames, as soon as they are all fairly up, should be nicely thinned out with the hand, and have a little dry earth afterwards sifted amongst them. Young carrots, too, sown in frames, should be treated in the same way.

Onions, *potatoes*, *carrots*, and all other varieties of root vegetables that may be thickly stored away, should be examined, and those shewing even the slightest symptoms of decay should be picked out for immediate use. The autumn-sown *onions* would be better secured against the influence of a severe frost by a dredging of charred dust, or dry dust of any kind.

Successions of *endive* should be secured, when dry, for blanching, and that which may be growing in different borders and quarters should be secured by taking up each plant with a ball of earth attached, and placing them all in pots or frames, or on sloping dry banks under hurdles, or, indeed, putting it in any place where it can be easily protected in frosty weather.

The *Bath Cos*, *Hardy Hammersmith*, and other varieties of lettuce that are now of a tolerable size, may be stowed to advantage in the same way, when required for use throughout the year.

Peas and *Beans* may be sown in succession, and a dry border selected for sowing the early short-topped *radishes*, and the early *Horn carrots*, in alternate drills of six inches apart, protecting them with thatched, slightly-made frames or hurdles, or mulched with litter. The blanching of *cardoons* and *celery* should be attended to on dry afternoons, and gardeners must be careful to have some kind of protective material in readiness for frosty weather. Ferns, mulch, leaves, pea or bean haum, or evergreen boughs, are all, as has been before stated, useful for this purpose.

Continue to sow *small salading*, according to the supply that may be required.

Radishes may also be sown in the open warm borders, to be protected in various ways; but the best way at this season is to make up snug little slight hotbeds for such purposes, and if a good frame cannot be spared, four boards may be nailed together, of any depth from six inches to a foot, to receive a light—an old window-sash, canvas, or thatched hurdle will serve for the purpose, though of course there is nothing so good as glass of any kind. Let the materials be well worked up and turned over three or four times previous to making up the beds, which beds should be, when finished, at least a foot higher at the back than in the front. Let the soil on the beds be from nine inches to a foot in thickness, at least, and also let the frame be filled up to within two inches of its top before the seed is sown, and if the upper six inches of it be run through a coarse sieve, all the better for the radishes to run down into.

Sow the seeds rather too thick than too thin; press the whole surface down—seeds and all—with the back of the spade; then sift over the whole with a fine sieve, so as to cover all the seeds neatly; put on the light, and the work is done. Let the light remain on until the plants are all up and ready to be thinned out, which should be done with the hand. After thinning out, sift a little dry earth over and amongst the whole, after which give plenty of air in all favourable weather, by taking the lights quite off on dry and fine days.

A few pots of *rhubarb* may be brought into the forcing pit or vinery, in order to keep up a succession of this excellent vegetable; the out-door beds should be cleared of weeds, forked up carefully, and top-dressed, as before directed, if not already done.

Give plenty of air to *cauliflower* plants in frames, by taking the lights quite off on all fine days, and also the hand-glass crop, removing all decayed leaves, and keeping a watchful eye upon the slugs.

James Barnes & W,

MISCELLANEOUS INFORMATION.

ALLOTMENT FARMING FOR JANUARY

The advent of another season of sowing, planting, and cultural operations, will bring with it fresh hopes to those who are fortunate enough to hold a plot of land; and hence the great advantage of a system of the kind, not only in an individual but a national point of view; for whilst the cottager who occupies a mere hovel without a garden in all torpidity and indifference, the allotment holder, who takes a pride in his plot, is all animation. He, indeed, feels that he has a stake in the country, whilst the monotony of the day dreams of the former is scarcely disturbed by anything but thoughts of the poor-law unions or of the almshouse. It has been well said, "give a man something to hope for, and he immediately becomes a better member of society." Now this is not a mere poor-law question, but a question connected with England's future weal or woe. In mere daily labour, at a minimum amount of wages, the position of the labourer is fixed—appears, of course, unalterable; and whilst the dieting, clothing, &c., of the family are all at the very lowest ebb, what inducement can there be for him to persevere? The man becomes a mere machine, and a machine, too, of the most sluggish motive powers. How different the case with the allotment holder, or one who holds a nice garden, of from a quarter to half an acre, attached to his homestead? More especially if the holder be the son of a labourer who holds, or did in his day, a similar plot. His children will have been taught and made to work many an hour when the children, of the former class have been lounging about the lanes, pillaging sticks out of every hedge, robbing orchards, or, if nigh a village, dawdling about the village green, or congregating in nooks and corners, to the moral corruption of each other.

We would now address a few words to the allotment holder or cottager who possesses a garden, and which we trust may not be without their use; the prospect at hand of another course of useful labours must be our apology. In the first place, then, comforts long enjoyed are but too apt with some characters to be lightly esteemed; and when such is the case with allotment holders, even they may become supine or slothful in spite of the many inducements to industry. When such is the case it is a most lamentable affair, for we have certainly known cottage gardens and allotment pieces held by sluggards, who proved themselves quite unworthy of so great a boon. Great as has been the distress among the labouring classes at times, it has ever been, as far as our experience reaches, in the power of an industrious and civil labourer, who held a plot of ground, to keep his family above parochial relief—God giving him health; exceptions there may be, but they are few indeed.

The cottager, therefore, who holds a good situation should thankfully embrace the opportunity placed before him of rearing his family in industrious habits, and should at all times emulously consider the possibility that exists of raising some of the members of his family in the social scale; or, at least, of ensuring them the respect always accorded to honest perseverance.

Amongst other duties of the allotment holder, there is one which should receive some attention at this dormant season, and for which time can scarcely be found whilst cultural operations are pressing. The duty we here allude to is to endeavour to improve his plans yearly. Now, his own practical observations, made annually, will be of no small amount we are aware. But why not avail himself of the benefit of the experience of those, perhaps, a hundred miles away? It will be seen that we mean reading; that is to say, to those who can read; and we little doubt that those who cannot might easily get their neighbours, or, perhaps, their own children, to read to them. This will be a source of much more comfort, and more profitable in its results, than lurking for hours in the village alehouse. We would here point especially to the reading, occasionally, of works connected with agriculture or cottage gardening. There are now cheap little handbooks on such subjects within reach of all; and although all they contain may not be correct, nor the most economical view of affairs, yet much may be gleaned out of them by a mind anxious for knowledge, and desirous of introducing every *real* improvement within its reach. We are sorry to observe, however, that a good many of this class lay such stress on a few facts they may have already gleaned, that they become prejudiced against anything foreign to their notions; hence they must of necessity remain stationary or nearly so. Let all such, however, understand that there is no stand-still point in any art or science. The history of the past, did they reflect on it—even no further back than within the memory of old men now living—would prove to them that there has always been a constant advance in knowledge of every kind. Why, then, should we suppose that we have just reached absolute perfection in the year 1850? The main business is, like lads playing with snow, to keep the ball rolling, and it will be sure to increase. We will now proceed to look over our allotment affairs preparatory to the advance of spring.

Fallows.—We use this term to denote land laying at rest after receiving spade culture. This is done, according to the old way of expressing it, 'to sweeten." Our allotment friends should not rest satisfied with the term "sweeten;" but in this, as in all such cases, dive into the hidden meaning of such off-hand terms. Trenching and ridging was adverted to in the last month allotment paper. We may here add that the extra amount of evaporation, encouraged by presenting a greater amount of surface, and the atmosphere, enables the soil to empty itself, in some degree, of mere moisture; and this, in conjunction with drainage, paves the way to a more free reception of the renewing powers of the atmosphere or air. Other benefits pertaining to ridging were pointed out briefly last month.

Drainage.—Little can be added to our last remarks. It may merely be observed that there is still time, if hitherto neglected, to carry out such plans.

Improvement of Texture.—This term will not at first sight be thoroughly understood by the ordinary labourer. In plain words, then, we mean adopting measures to make adhesive or sticky soils lighter and more free; and those which are too light and sandy, or peaty, as the case may be, more solid. Cinder-ashes are at all times within reach of the allotment holder, and of these he can hardly apply too many, if his *soil is too clayey*, or too stiff, as it is commonly termed. People will perhaps tell him they canker crops—this is nonsense: they not only do no harm, but much good in such cases. Open sand—if to be had—is another excellent material, or even old lime-rubbish: any or all of these materials, when easily procurable, should be seized on by the allotment holder, to open his soil if too close or adhesive. We may again repeat that if stagnant and undrained much of the benefits arising from the application of such correctives will be lost; these materials should be applied, if possible, before ridging the ground; and being equally spread, and trenched in, the benefits will be readily perceptible at cropping time, when the land is levelled down.

Sandy Soils are improved by marl, or burnt clay; also by adding much old mellow peaty matter, and ditchings, or pond mud, if at hand.

Peaty Soil must have some drainage to begin with, or the labour will be entirely thrown away. This done, sandy materials or ashes will open its pores to receive the air, and in a second season, when the waters have passed and it becomes mellow, marly materials will benefit it, for it must be rendered somewhat firm. Burning is here of great service, especially where the peat is deep; it produces an ash on the very spot, which is of great service in mellowing the soil.

Manures.—A good manager, who keeps a pig or two, and it may be a cow, will not leave his manure-heap to ferment as it likes, and to become grown over with weeds in some portions of it. Of course, the cottager's manure heap is a very small affair, especially just after his last spring crops are got in. Towards autumn, or Christmas, however, there will be something to look at, and a little labour will be requisite. Turning becomes necessary; and as there will be some at the bottom very old and rotten, and some at the top very fresh, some system of management must be fixed on in the mind. Now, this depends on two or three matters. If he has a cow we may presume he has a little pasture or mowing-ground; in such case we would turn the fresher material by itself for the mowing or pasture, and the oldest portion by itself for drill cropping of roots, &c. Indeed, a portion of the former may at once be led away to the mowing-ground; if the pasturage requires any it may not be expedient to cover that as yet, as a "bite" may still be required. With the older portion for root crops it would be well to mix any old rotting material that can be scraped together to increase bulk. Mellow ditchings, old tan, old plaster-rubbish, old rotten weeds, burnt or charred materials, leaf soil, &c., are all eligible, and indeed valuable; and the sweepings of chimneys, or peat ashes, may at once be thrown on the heap. All this, well-turned and thoroughly mixed, will increase both the bulk and the value of the manure, a matter of great consequence to the cottager, who should be always on the look-out for articles of the kind: for many a one in a less needy position throws away, with the utmost indifference, things which will prove of much value to the allotment holder.

We take for granted that every cottager is careful that all soapsuds, urine, and the house slops, are daily thrown on the muck-heap all the year. Surely every one by this time is aware of the great importance of this proceeding.

Rotation of Crops.—Many fanciful schemes may of course be devised, but in the present position of allotment gardening—which we consider quite in its swaddling-clothes—it appears to us that simplicity will be best. Besides, the diagram scheme given last spring requires carrying out, and being, as we conceive, pretty well concocted, it will be best to pursue it another summer. Farther remarks on that head must therefore give place, until our next, to some miscellaneous remarks.

Hedging, Fencing, &c.—We need scarcely say that any fencing repairs, or new hedge making, necessary, should be done before spring cropping begins: in fact, before February is out. In planting new hedges let the soil be well loosened, and all coarse weeds, hedge dubbings, &c., may be buried in the bottom of the trench. It would be well for all those setting out allotments in districts of a cold character, to consider the vast benefits arising from the use of holly hedges. The only drawback is, that they are somewhat longer in making a good hedge. We have known holly and quick (mixed) to form a good hedge; about one holly in every yard.

The Cow.—If the cow is dry some straw diet will be sufficient for her for awhile, adding a few sliced turnips each evening, with a handful or two of bran strewed through them. The same treatment may be given to heifers or yearlings, although the latter should have more generous diet, if possible, in order to keep them growing, as their full-grown size depends on this point. Let us advise cottagers against letting their cow, or calf, stand out in all weathers; this is very great folly. We know many who will "turn out" at one hour precisely, and "take up" in a similar way, whilst half the time the poor beast stands shivering at the gate. It is not the hour of the day but the character of the weather that should rule this operation. If the allotment holder or cottager has a "winter's cow," that is, one lately calved, he may make some cash of his butter, provided he has persevered in obtaining plenty of roots from his plot of ground. Plenty of swedes and mangold, or waste carrots and parsnips, sliced, with a little bran shook over them, and some sweet hay or good oat straw, will force plenty of milk. If he is short of roots, we would advise him to use a little linseed in cold weather. We boil roots and linseed together; scarcely half a pint of linseed to each meal, adding a little bran or other meal. Of course there will occasionally be the refuse leaves of green kale, &c.; all these help to keep the bowels of the animal in proper order—the one thing counteracting the extreme tendencies of the other. As before observed, all refuse or rejected meats from the cow's manger should be cleaned out every morning the moment the cow is turned out, and given to the pig. The cottager's wife or children will attend to these little matters.

THE POULTRY-KEEPER'S CALENDAR.

January.

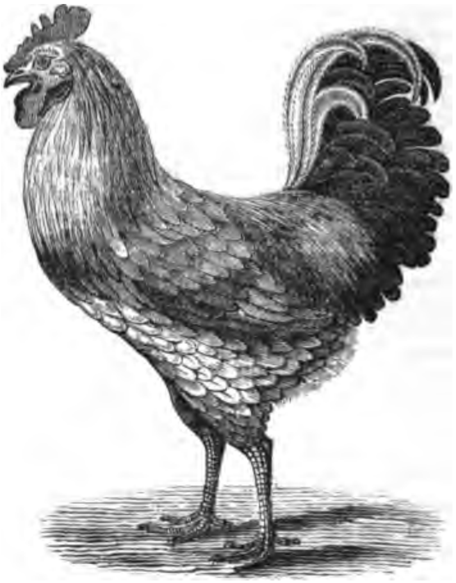
By Martin Doyle, Author of " Hints to Small Farmers," &c.

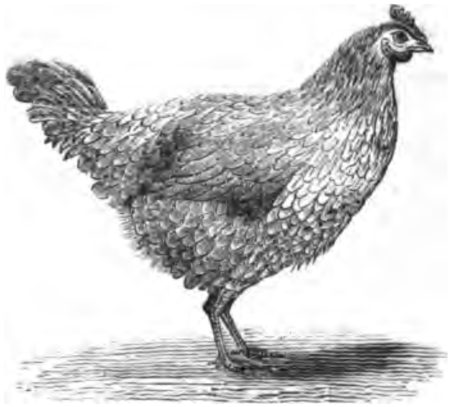
The good results of now possessing pullets of last March for winter laying has been fully experienced by those persons who have had the precaution to provide them in due time. Some old hens are still indisposed to resume their laying in consequence of the moulting fever which affected them at a late period of autumn. For this reason it is judicious, (unless for the propagation of superior breeds) to dispose of hens, as well as cocks, before they become old. Even with the liberty of scratching for the undigested corn which had escaped from the stomach of the horse on fermenting litter, and thereby acquiring warmth as well as amusement and food; and of rolling in warm sifted ashes which, while it communicates heat to their skins, relieves them from vermin; aged hens will be at this season languid in temperament. To induce laying, occasional feeds of hempseed will be found useful. We would recommend also the cultivation (on a small scale) of buckwheat, for feeding layers. This grain is of a stimulating quality and given constantly to poultry in the provinces of Normandy and Picardy, which supply England with millions of eggs annually. The French peasantry consider as much of this grain as a full-sized wine-glass would contain to be a sufficient average allowance for each fowl per day. As this grain is very hard and angular, it ought to be ground, (though this process is frequently omitted) lest it should cause inflammation in the throat, which is not uncommon in pullets. Fowls, when unconfined, instinctively swallow gravel, or other gritty substances to aid the work of grinding by the gizzard, which is a sort of thick machine worked by a powerful muscle; in a coop they cannot supply the substances necessary to aid the action of the gizzard; and, therefore, if their food be of unground corn, those substances ought to be placed within their reach.

Lime, also, in some form, should be conveyed in the food of hens about to lay, because it is the principal element of the egg-shells. One of the first symptoms of laying, which a hen, with the power of following her instincts, will exhibit, is to pick up grains of limestone, mortar, or any other calcareous matter. Some of our own hens have been busily occupied lately, among other indications of laying, in picking mortar from a wall, which had no previous attractions for them. Wheat contains lime—water also may contain a sufficiency for the purpose of generating shell—but in some manner it must be conveyed to all laying poultry. Providence acts mysteriously and bountifully in meeting necessities of this kind, but the care and skill of man are not for this reason to be dispensed with. Proceed with the cramming and general fattening of fowls as in the two preceding months.

Whether fowls at liberty should be fed twice or three times a-day will depend on circumstances. If they can pick up food for themselves it will be sufficient to feed them with corn early in the morning and in the afternoon before they roost. If they are not allowed opportunities of foraging for themselves, they ought to be given (and more decidedly so, if in course of preparation for the table) a feed at noon of meat, mixed with boiled potatoes, parsnips, &c., if great economy be desirable, and skim-milk if it be easily procurable. It is evident that more artificial feeding is required in winter than in summer for poultry unconfined. It is supposed that ground corn goes much farther in fattening than raw grain; and that the boiling of barley increases the bulk so much that a considerable saving is thereby gained.

Our chief breeds of the fowl have arisen from crosses obtained by the aid of varieties imported from warmer climates. One of the most recent of these importations is the gigantic *Cochin China fowl.* Two fine specimens, represented in the annexed drawings, were sent in 1846 by our Queen as a present to Lord Heytesbury. This kind is so large and powerful as to have led unscientific persons to think them a variety of the Bustard, or wild Turkey; and having the ends of their wings peculiarly jointed, so as to double them forward between their body and the upper part of their wings, gives them an appearance which has attained for them the name of the " Ostrich fowl."





Their plumage is generally a rich glossy brown, with a blackish horse-shoe mark upon the breast. The comb is middle-sized, not deeply toothed; and the wattles are double. The flesh is white and delicate, and the eggs good flavoured, large, and with a chocolate-coloured shell. They have been known to lay two and even three eggs in one day. This fact has been doubted, but Mr. Richardson, who records it, refers as witnesses to the Right Hon. Mr. Shaw, Recorder of Dublin, to Her Majesty's poultry-keeper, Mr. Walter's, and to Mr Nolan of Dublin. One of the hens presented by Her Majesty, and named "Bessy," laid 94 eggs in 103 days.

As all our varieties, either more or less remotely, are descended from parents, natives of dry and hot climates, the changes no less than the natural severity of the atmosphere, are now very prejudicial to the constitutions of the gallinaceous tribes. The few observant and scientific men who have condescended to turn their attention to the physiology of poultry and the causes, effects, and treatment of their maladies have traced many of these to derangement of the digestive organs, and to pulmonary, nervous, and febrile, affections—most of which arise from want of protection from rain and cold vapours. Foul-feeding and dirty water have their share too in producing the disorders of fowls; and the finer and more valuable varieties are the most liable to suffer from any of the foregoing causes of distemper. Asthma, roup, and diarrhœa may now prevail. For the first, Mr. Richardson recommends warmth and repeated doses of sulphur, ipecacuanha, and Cayenne pepper, mixed with butter; for the second, which resembles the influenza in dogs, and is attended with difficulty of breathing, gaping, blindness, and ultimately a foul discharge from the nostrils, and great thirst, pellets of powdered gentian 1 part, powdered ginger 1 part, Epsom salts 1 and a half parts, flour of sulphur a half part, made up with butter, and given every morning. The swelling of the tail-gland has been often mistaken for the roup; but it is merely a boil, which, when ripe, should be opened. Change from damp to dry warm air will usually cure diarrhœa. Old women's specifics are, after all, the most likely to be efficacious. One of their approved remedies for gapes, or influenza, is a pellet of pounded rue and lard slipped down into the maw once a day; and for gout or rheumatism, to which old hens are subject in severe weather, the warmth of a chimney-corner, with a bed of wool in a basket, or a roll of flannel round the legs.

Among the tribes of the gallinaceous order *Guinea fowls* are not to be overlooked. They are in season from December to April, and come in when game has gone out, and before spring-chickens are forward. The plumage of the Guinea-fowl is extremely pretty, being spangled with small spots of white over a black ground, shaded with grey and brown; occasionally, the black and white change places, making the plumage look as if covered with a net-work of lace. This bird is a native of Central Africa; rather wild in its habits, and therefore unsuited to poultry-keepers who have no run for them. They like to roam about in search of grubs and insects, and to pick blades of grass. Fattening them in the coop is so contrary to their habits, that usually they pine away, if too confined. The best treatment for them is to feed them well in the poultry-yard with corn. They are especially valuable as layers, being, of all known birds, perhaps, the most prolific of eggs.

At the proper time we shall have to treat of the rearing of these interesting birds, and tell the reader how to know the cock from the hen: for to distinguish them is rather difficult.

THE BEE-KEEPER'S CALENDAR.—Jan.

By J. H. Payne, Esq., Author of "The Bee-Keeper's Guide," &c.

MUCH has already been said about feeding, *cleaning floor-boards*, and securing the hives well against wet. Presuming, therefore, that all these things have been well attended to, little remains to be done during the present month beyond destroying the titmouse (*Parus major*), already described, in those localities where they happen to abound; to see that the *entrances* of the hives are narrowed, and that during the time snow remains upon the ground, that they are *wholly* closed, so that not a single bee can escape, for the sun shining upon the snow never fails to bring the bees out of their hives, and, settling upon the snow, they are immediately chilled, and die; but, upon the disappearance of the snow, not an hour must be lost in unstopping the entrances, and giving the bees full liberty. This is very important, for, after a confinement of ten or twelve days, which may sometimes be found necessary, full liberty must be given them, upon the melting of the snow, by unstopping the hives; and not only unstopping, but seeing that the entrances are clear, and not filled up with dead bees, which, after a long confinement, will very frequently happen. Many a good stock has perished for want of this precaution.

The provident apiarian will now provide himself with all the *glasses* and *hives*, of whatever kind he may fancy, either of wood or straw, that he may be likely to require during the ensuing season, and it is always better to have a few to spare than to have a short supply, for it is not at all an unusual thing for a swarm to fly away whilst sending about to procure a hive; when, on the contrary, had there been a good supply, much time and inconvenience would have been saved, as well as the loss of the bees prevented. Many cottagers around me make their own hives during the winter evenings, and very praiseworthy it is; the materials to make them cost very little. Straw is easily obtained, brambles also to sew them with abounds everywhere, and the method of making them is very easily acquired.

I have just learnt, from a person recently returned from Australia, an account of a single stock of bees, which he took from England with him a few years ago. "They have," says he, "stocked the whole district, and all the farmers are getting them; they work all the year round, and make a great quantity of honey of very excellent quality." This person uses square wood boxes, and obtains his honey by deprivation. He is going to take out with him some glasses made upon the most approved plan.

I heard, a short time since, of a ton weight of honey being sent to England from Australia by one person, but these large importations need not alarm the English cottager, they will not at all affect the sale or the price of his honey; for this imported honey must necessarily be drained, in which state it always fetches a very low price, whilst his honey in the combs, in neat little hives or glasses, of about eight or ten pounds each, will, at all times, fetch in the London market from one to two shillings a pound, and sometimes even a higher price. In my next paper I will endeavour to tell my cottage friends what a cottager, residing in a village near to me, did with his honey a few years ago in the London market, and, I think, the success which he met with will induce them all to keep bees. I have frequently heard persons exclaim, when looking at a well-filled glass of honey, "I wish that I possessed a garden, and I would certainly have some bees." Now, this is not indispensably necessary, for, says Dr. Bevan, "to those who, residing in towns, may consider it indispensable to the success of an apiary that it should be in the immediate vicinity of good pasturage, and be thereby deterred from benefiting and amusing themselves by keeping bees, it may be satisfactory to learn that the apiary of the celebrated Bonner was situated in a garret in the centre of Glasgow, where it flourished for several years, and furnished him with the means of making many interesting and valuable observations which he gave to the world about thirty years ago." My own experience also proves the truth of the above statement. Residing myself for four years in the centre of a large town, in a house without a garden, I kept two stocks of bees in my study, in glass hives, and four or five others in the improved cottage hive upon the roof of my house, and I am not aware that they have ever done better, or afforded me a larger quantity of honey in any other situation.

MY FARM-YARD.

What a change one little month makes in the aspect of affairs in the country. Our good neighbours in the town cannot perceive the difference between November and December! yet there are no two months less alike. Wet, dreary, foggy November, every thing about you smelling damp and musty, is succeeded by bright, cold December. The fields are nicely dried; the leaves swept up, or blown away; and we can once more stand about and scrutinise our farm-yard. I am very sure all animals agree with me in preferring dry, cold weather to wet and gloomy; and, however liberal you may be with your straw, you cannot make a farm-yard look commonly comfortable on a rainy day. Pigs dislike wet weather amazingly; and many people imagine they have the gift of knowing when rain is coming, and that on the approach of stormy weather they show signs of uneasiness, and try to get under shelter some hours before rain actually falls. Be this as it may, they certainly are very sensible animals. There is a story told, in "Youatt's History of the Pig," of a sow being trained to find game. Her sense of smelling was most acute, and she soon learnt to "point and back" in a manner equal to the best pointer the gentleman had who trained her. I suspect, though, there is not an animal but would, if kindly and patiently taught, well repay the trouble expended on its education. Now is the time, if you keep a sow, that you must think of breeding from her. The earlier in the spring you can get a litter the better it will be, for the pigs will then become a good size before you want to put them up to fatten. It is almost useless to recommend any particular breed, as the cottager will select that one which is most common in his neighbourhood. I, however, prefer the Berkshire, and, where it is possible for you to have a choice, should always recommend that breed; they are very hardy, very handsome, and fatten very quickly. There is a very good breed in some parts of Sussex. I do not mean the Sussex pig, but it is a cross between the Berkshire and Sussex. People talk a great deal of the Chinese breed, but I think them much too thin-skinned to be a serviceable race for our cold climate, besides they are very "particular in their diet," which, I think every one will agree with me, is not to be desired in a pig. If your sow has had a litter lately, I strongly advise you to kill several of the young fry, and either sell or eat them as suckers. They are esteemed great delicacies, and fetch high prices in many markets. A popular writer has left on record, "that of all the delicacies of the whole eatable world, I will mention this as the most delicate; I speak not of your grown porkers, things between pig and pork, but of a tender suckling under a moon old." If your opinion coincides with the one quoted (I must own mine does), I strongly advise you to kill several, for even if you succeed in rearing them, the cold winter months prevent their growth, and they never become fine pigs. Pigs are liable to very few diseases, and, generally speaking, a warm bran mash, with a little nitre in it, will cure most of their complaints. If you observe their hair rubbing off in patches, you must give them a little sulphur mixed with the food, and also mix some with lard, and rub it over the spot. Hogslard is a very useful thing, and should be carefully melted down, and put into a bladder whenever a pig is killed. If melted whilst quite fresh, and tied tightly up, it will keep a long time without salt, which, for many purposes, would prevent its being used. It is a capital remedy for broken chilblains, mixed with sufficient spermaceti and camphor to make a stiff paste. I omitted in my last paper to give a receipt for curing hams, and was only reminded of it by tasting an excellent one cured by the same receipt; and although the cottager will not waste his money by trying it, it may be useful to another class of readers, who, like myself, are fond of trying new receipts. After the ham has been salted three days, rub the following mixture well over it:—½ lb. bay salt; 2 ozs. saltpetre; ¼ lb. black pepper; ½ lb. coarse sugar; ¼ lb. of allspice; 2 ozs. juniper berries, well bruised; 1 oz. coriander seed, pounded: boil all together for half-an-hour, with a pint of ale, and when cold pour it over the ham. The great art in curing either bacon or hams consists in rubbing them well and frequently.

I read Martin Doyle's essays with much interest, and it appears to me quite presumptuous to mention a word on the subject of poultry in the same paper; but there is a little piece of economy, which, if attended to in large establishments, would much assist the poor, and, therefore, I will mention it. It is to have the feathers, feet, and necks of all the poultry, saved. The two latter make excellent broth; and the feathers, if put into paper bags, and then dried in a cool oven, make a most acceptable present for a poor person, who has only to cut off the quill close to the feather, which job any child can manage, and then there is the material for a nice soft pillow, far preferable to the one of chopped hay I saw, to day, supporting a poor, sick person's head. If every one who is "blessed with this world's goods" would only look around, and contrive some little comfort for their poorer "brother," much poverty would be relieved, and many a cottage wear a more cheerful aspect, at this season of the year especially. "To do good, and to distribute, forget not!" C. M. A.

MY PHYSIC GARDEN.

By a Physician.

No. 3.—Ranunculaceæ.

The majority of plants in this order are chiefly interesting to those who cultivate flowers more for their beauty than their usefulness It contains some of the most elegant of our border flowers—anemone, ranunculus, hepatica, globe-flower, winter aconite, hellebore, columbine, larkspur, monkshood, and pœony—while among the wild flowers we have traveller's-joy, buttercups, and marsh marigold. I fear I must plead guilty to having admitted them to my "physic garden," more for pleasure than for profit; but, since they are there, let me describe them. Strange to say they are as remarkable for their venemous qualities as for their grace and elegance. Would that *they* alone were so. The properties of the ranunculaceæ depend upon a principle of so volatile a nature that it is utterly destroyed by infusion or exposure to heat; and all the family are more or less acrid, caustic, and poisonous. All must be regarded with great suspicion, even, although some are said to be innocuous. Nearly all possess purgative qualities, some are powerful but dangerous tonics, some narcotics, and others emetic.

It may here be as well to observe that the value of a plant to a physician depends in a great measure upon the soil and climate in which it grows. Many plants introduced from India, and apparently perfectly acclimated, are found to have lost their medicinal properties, and become inert. Thus, in the same manner, one of the parsnip tribe is poisonous in the south of England, and harmless when grown in Scotland—a lesson of caution which cannot be too deeply impressed on those who, ignorant of the fact, would use in one climate that which they found beneficial in another.

There are many plants in this family upon which I would love to dwell. The Meadow Rue (*Thalictrum flavum*), with its gently laxative leaves and roots, still a favourite remedy in some districts, in jaundice; and as a wash in old and indolent sores; or to kill certain parasitical insects that infest the unclean. The Anemones, too, would detain me for their loveliness, though they might tempt me, reader, to read you the lesson, that solid worth is not always found among those whose exterior is the most attractive. The gay, the witty, the light-hearted, may for a time amuse, but what do they leave behind to benefit or instruct? But I must confine myself to the really useful. Perhaps some day I may describe to you my garden generally, and tell you of all the motley fancies I have woven with my flowers. The philosopher may smile, but for me, I would not give the love my heart can feel for my poor fragile flowers for all the grandeur of his musty lore.

The first, then, on my list is Monkshood (*Aconitum napellus*), with its dark blue flowers, shaped not unlike the hoods of shaven monks I have seen abroad; and called also Wolf's-bane, because its roots were formerly pounded and mixed with flesh to destroy wolves and other beasts of prey. I grow it in my physic garden; but, reader, chase it from your borders, or if you think it too ornamental not to find a place, never twine it in a nosegay, for its scent is very deleterious. It is the root, however, which seems to be the most poisonous part of the plant; so virulent, indeed, that the ancients, who were unacquainted with chemistry and its products, regarded the aconite as the most virulent of all poisons. Within late years, too, instances are not wanted of death from eating its leaves as salad. The deadly principle in the plant is a darkish green fecula, called aconitine, of so powerful a character, that one-fiftieth part of a grain has endangered the life of an individual. Although its action upon the human frame appears to be confined to the brain and nervous system, producing a deathlike feeling, accompanied with a tingling sensation and delirium, it has, nevertheless, been used in many of the most troublesome diseases incident to humanity. It has been administered in gout and rheumatism; and given with success in epilepsy, paralysis, and other nervous affections to which its use is now confined. The only manner in which any one but a medical man could venture to use it, is as a tincture made by macerating a pound of the recently dried and coarsely pounded root in about two pints of spirits, and using it with a small piece of sponge fixed on a stick to relieve rheumatic and neuralgic pains. So used as an external application, its effects are sometimes almost magical. But it must be remembered how dangerous a remedy it is, and in the hands of the unskilful it may prove fatal rather than beneficial.

The pretty Larkspur (*Delphinium consolida,*) need not long detain us. Its flowers I have occasionally employed as a stimulating poultice in certain forms of sore eyes (*opthalmia*); but I chiefly use its juice, with that of another species, *D. staphisagria*, made into an ointment to destroy vermin on the human body. Its seeds, too, are macerated in vinegar, as a wash for the same purpose. These preparations, however, must not be carelessly used, since they are very acrid and caustic, and apt to produce violent inflammation of the skin.

The Hellebore merits more attention. And the first thing I must remark is its Latin name, derived from two Greek words, signifying that the plant will *cause death* if used for *food*. There are four medicinal species of hellebore; and others, doubtless, possess somewhat similar properties. The most important is the Black Hellebore, (*Helleborus niger*), which from its flowering in the depth of winter has obtained the more common name of Christmas rose. The root is the valuable portion of the plant, which when dried and powdered, and given in ten to fifteen-grain doses, is employed as a strong drastic purgative. It must, however, be used with great caution, since its effects vary considerably and are much dependent upon circumstances. Thus the root when fresh is much more powerful in its action than when dry, its virtues appearing to depend upon some volatile principle. Again, though the hellebore is a desirable purgative in some constitutions, it is very injurious to others. Bearing these facts in mind, it often proves servicable in nervous affections, especially in mania, melancholy, and epilepsy. It is also useful in dropsy. Too large a dose occasions sickness, pain in the abdomen, cramps, paralysis, insensibility, and death. There are, as I have said, three other officinal species of hellebore:—the Eastern (*H. officinalis*), a native of the Levant, and interesting from the antiquity of its use; the Green Hellebore (*H. viridis*); and the Stinking Hellebore (*H. fœtidus*): natives of England, and the action of the roots of all four are so similar, that it matters little which is employed. Some old writers assert that hellebore is much more violent in its effects upon "suche as be whole" than upon those who "have not their health;" and we know that among the Roman orators it was no uncommon procedure to prepare themselves for any great oratorical effort, by a dose of the herb.

We come now to the Crowsfoot, and, when we consider the great similarity which maintains among the several species of ranunculus, we cannot wonder that the names of crowsfoot and butter-cup should be common to several plants really distinct; in short, they are used indiscriminately to nearly all the English species. Neither can we be surprised that such common plants should possess numerous provincial names, of which Culpepper speaks as follows:—"Many are the names this furious, biting herb hath obtained, almost enough to make up a Welshman's pedigree, if he fetch no farther than John of Gaunt, or William the Conqueror; for it is called frogsfoot (from the Greek name Batrakian), crowsfoot, gold knobs, gold cups, king's-knob, baffiners, troil-flowers, polks, locket-goulions, and butter-flowers."

The first species I shall speak of is the Upright Crowsfoot (*Ranunculus acris*), so called from its extreme acridity. Curtis says, "that even pulling up the plant and carrying it for a short time, has produced a considerable inflammation in the palm of the hand, and that hungry cattle have had their mouths made sore and blistered from eating it." An infusion of the Lesser Spearwort (*R. flammula*), is said to be an instantaneous emetic in cases of poisoning, but I have never tried it, and my readers must not experiment with such a dangerous group of plants as these. This, and the Hurtful Crowsfoot (*R. sceleratus*), are employed in many parts of the highlands of Scotland, and in the Isle of Skye, for the purpose of raising blisters: the mode of applying them is simple and curious. Limpet shells are filled with the bruised leaves and placed upon the part, where they usually produce a blister in about an hour and a half. It will, perhaps, hardly be credited, that strolling beggars often avail themselves of this peculiar property—which is also possessed by the Bulbous-rooted Crowsfoot (*R. bulbosus*,)—to cause ulcers on their arms and legs for the purpose of exciting compassion—a procedure, however, which brings with it its own punishment, since the sores produced are of an angry character and very difficult to heal. The plants themselves are among the most virulent of our native herbs; and, in the words of an old author "they are dangerous and hurtful, yea they kyl and slay, spoyling the senses and the understanding." To this general condemnation I must mention one exception, since it is said to differ from all the rest in being not only innocuous and free from acrimonious properties, but actually nutritive to cattle, and capable of being converted to useful purposes. This is the Water Crowsfoot (*R. aquatilis*), so common in ponds and ditches, and making so pretty a show when its white and delicate flowers are fully expanded.

OUR VILLAGE WALKS.

(No. 12.)

There is an old Scotch saying, to this effect, that a mild, open Christmas makes a full churchyard. It may be so; and, no doubt, the benefit and blessing of severe winters is great. The human frame is braced and nerved by them; and the vegetable world is strengthened, rested, and enabled to put forth healthy and vigorous shoots, when the soft rays of the returning sun call them once more into life and energy. The earth is sweetened and enriched by the snow and frost, and injurious insects are destroyed. But still, let us bless God for softening so much the sufferings of the poor, by giving us hitherto a mild and open season. In these days of severe pressure and distress, how much the trials of the lower classes are increased by cold—where such is dear and difficult to obtain. When the labourer returns from his daily work, wet and chilly, perhaps having gone through violent exercise and therefore more sensible of cold, it is impossible to be warmed, and his clothes properly dried, when the very moisture freezes in them, and the weather is so severe that the little spark of fire on the hearth can hardly be felt when the cold hands are spread over it. It is a special mercy when the "tender pity" of our Father in heaven, softens the sufferings of His poorer children; for their richer brethren are little, *very* little, aware of the privations and distress of the lowly cottager. True—they *are* often improvident—they are often unthankful, evil-minded, and deceptive—and we are very frequently misled and disappointed in our endeavours to do good. But let us take comfort and courage, and strive to do more instead of less; for if our God mercifully condescends to "send rain upon the just and unjust," He who can read so clearly the heart of man—what are we, that we should shrink from doing something, because we cannot do always wisely, or see the depths of human depravity hidden from finite eyes? Besides, do *we* make more grateful returns to the Giver of all good than our brethren do to us? Let this question be answered honestly, and we shall at once be still.

At this season we find the dark, quiet foliage of the yew-tree in great beauty. It is a common tree, but when allowed to grow freely and naturally it is rich and ornamental, especially during winter. It is well adapted for hedges and screens to exposed gardens, for it grows thickly and is easily trained to the required height and shape. It rivals the oak in age: and some of these trees, yet in existence in our own land, are supposed to have stood for more than a thousand years. The wood of the yew was used in our earliest times for making the longbows, with which our ancestors gained so many battles, and laid the firm groundwork of our noble Constitution, so justly praised throughout the world. It is said that in those troubled times a yew-tree was ordered to be planted in every churchyard, that wood, for the construction of this important weapon, might be preserved in places of peculiar safety. What a striking contrast! the emblem of mortal strife, standing beside the house of prayer and peace—the flesh and the spirit, as it were, striving together, and preaching a loud lesson to the children of men. Ah! had not God gone forth with our armies their strength would have failed before their enemies: for He "breaketh the bow and knappeth the spear in sunder, and burneth the chariot in the fire." Had not the "arm of the Lord" been stretched forth to guide England's hosts they would have been as the chariots and horsemen of Pharaoh. Let her people remember this, as they assemble together in the simple, beautiful village church, or stand beneath the shade of the aged tree, that has long ceased to deal death around. It may remind them of a day that is near at hand, when men "shall not learn war any more."

There is a peculiarity in an English country churchyard, that few other spots possess; there is a simplicity, a quietness, a language, and a power, that is felt the moment we pass through its gate, and enter the silent, unobtrusive resting-place of so many past generations. The simple building that stands peacefully within it, with its rich mantlings of ivy and the large antique tree that has borne it company for ages, has unspeakable beauty, and a resistless charm in the Christian's eye. How eloquent is every object! Every gravestone, every quiet mound, has a word of deep instruction for the frail, short-lived being who gazes on them, whose pilgrimage on earth is scarcely longer than his walk through the peaceful enclosure, and far more perilous; and whose days are but as the shadow that lies calmly upon the swelling sods while the sun is up. When his beams withdraw the shadow is gone: does not this speak a word to our thoughtless hearts?

At this particular season we need to think more deeply, to walk more softly, to consider more nearly, "the things that belong unto our peace." It is beautiful to mark the cottages clustering round their parish-church, as if men loved to hear its voice, cheering them on their dark and dreary way. How would every village, every parish, thrive, if men gathered thus round Him, "who is greater than the temple;" who is ever waiting to gather them, "as a hen gathereth her chickens under her wings," and who wept at their deafness to His gracious call. Let us remember that we may draw near to Him with our feet, and with our lips, while our hearts are far from Him; and we may love to tread His courts, while the Word

He speaks is made "of none effect." Beautiful as our simple churches are, many as are the spires that pierce the woodlands and point so sweetly to the skies, musical as are the chimes that merrily peal forth at every festive season, yet these are not "the Way, the Truth, the Life;" we may delight in them—we *do*, we must delight in them; they are England's own peculiar glory; they are her towers and bulwarks, and the strong cement that binds together her deep foundation, her lofty structure, and her people's hearts; but it is the "Spirit" alone "that quickeneth." "The flesh," the outward shell, "profiteth nothing" to the soul.

And now, once more, the fleeting year, as it rushes onward, cries with a voice of thunder to the heedless generation it leaves behind, "How long, ye simple ones, will ye love simplicity; and the scorners delight in their scorning, and fools hate knowledge?" Which of *us* can reply to the warning voice, "I am" *not* "the man?"

SOWING SEEDS OF BULBS.

In your editorial of last week, you remarked upon the proper season for sowing the seeds of bulbous plants. I beg to state that, the beginning of the present year (February 9), I sowed the seeds of mixed gladiolus in a box—of peat and vegetable earth, about equal parts—which came up in due season and grew vigorously through the summer, the box being placed out of doors, and with no especial attention in shading, merely supplying it with water, occasionally giving a little liquid manure; some have died down, but the greater part are, at the present time (10th Dec.), in full growth and very strong, and will, I imagine, continue to grow on until they show bloom. The box is now sheltered from heavy rains and frosty nights, but exposed during mild weather. One of the corms which died down, raised itself above the surface, and it is as large as a middling-sized crocus root. Also, on the 24th of January, I sowed a box of Ixia and Sparaxis seeds in drills, in similar soil, and, from the forest of foliage which sprang up, every seed must have become a plant. These died down in the summer, and were kept dry, without being disturbed, until October, when I began to give water, and I find a few of them are now making their second appearance. Seeds of the tulip I sow in March (up to the 23rd), and ranunculus I sow about the same time, for, when sown as early as January, I do not succeed so well with either of these last mentioned, as when sown later.

[These directions being from a very good authority, may be relied upon.—Ed. C. G.]

FORCING SEA-KALE.

With regard to the forcing of sea-kale, so as to obtain good, well-blanched, short and stout shoots in the months of November and December, I have always found it a much more difficult matter at this season to produce such shoots by heaping round the plants a quantity of fermenting materials, than by lifting the roots and forcing them in some one of the methods that have been previously described by me. I can always rely with more certainty on the latter plan, and the difference in the expense and trouble will bear no comparison, for, to force sea-kale in the natural ground, at that time of the year, when the plants have scarcely gone to rest, to excite them into growth and enable them to start kindly and strongly by the application of a sufficient quantity of fermenting materials, is no easy task. If not closely watched and daily attended to, much disappointment must and will occur from sudden changes of wind, drenching rains, and frost and snow, as well as the risk of too much exciting heat at intervals, which is sure to occasion a drawing up of the plants, causing them to become spindling and weak, with a tendency also to canker, &c., which is not the case when the sea-kale roots are lifted and forced in one moderate and uniform heat, which it is impossible to regulate and maintain with fermenting materials heaped and packed about the plants in the natural ground during the months of November and December. From the middle of January to the middle or end of February, indeed, sea-kale of the best quality may be produced by fermenting materials with pots, &c., to cover it where it has been growing and established, and from the middle of February to April, any amateur or cottager who has sea-kale plants, without either fermenting materials or any of the conveniences previously described, may produce it blanched, and of first-rate quality, by merely covering them eight or ten inches deep with dust of charred vegetables, fine cinder ashes, leaf-mould, or, indeed, with light earth of any kind; nature, at this season of the year, being so much in favour of its growth, that no artificial assistance is required. Indeed, it is advisable for those who may have been forcing sea-kale all the winter in its various ways, to finish their last production of it in the mode last named.

James Barnes.

[We quite agree with our able coadjutor that forcing sea-kale in the natural ground during November and December is more difficult than forcing it in-doors, and the plants require an abundance of fermenting materials, but then we have always had finer shoots and the same plants for a dozen years. A correspondent (*Delta*) writes thus:—"A word about Mr. Barnes' article on sea-kale at p. 89. Last winter, I grew about 150 roots in my cellar, which is warm and quite dark, merely packing the plants thickly together in a box, and filling up with soil, and I must say, never have I seen more beautiful sea-kale than that produced. I had three distinct cuttings from my plants, and after thus weakening them, planted out the roots in the open ground, in April, in good rich soil, and kept them well watered with liquid manure during the summer, and they are now fine strong roots ready for treating again in the same way. I can only say that the *quality* and appearance of the sea-kale thus treated was so superior, that I shall never force it in any other way." For those who can command an abundance of sea-kale plants, and are content with moderate-sized shoots, there is no doubt but that this mode may be adopted with advantage in November, December, and early in January, being least troublesome.—Ed. C. G.]

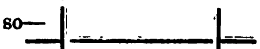
EXTRACTS FROM CORRESPONDENCE.

Celery Culture.—I was much pleased with the remarks of your correspondent "W. C. G." on celery culture, but more especially the hints thrown out with reference to using celery as a culinary vegetable, for by this means a great portion of the plant usually thrown away, may be profitably made use of. With reference to your correspondent's plan of planting in double rows, I admit that more plants may by this means be grown on a given space of land, but I have found that they never grow so large as when planted singly, but I do think they may be grown 5 or 6lbs., by planting them as he has described. I beg most respectfully to say, at the same time, that, in my opinion, your correspondent's remarks on the subject of liquid manure is calculated to mislead; my experience with reference to the liquid manure teaches me the possibility of giving it "a dose too much. Liquid manure is to be supplied to growing crops as a "stimulant," always considering the possibility of over stimulating. I am ready to admit that celery requires a great deal of moisture in its cultivation, but am of opinion that "too frequent and plentiful" supplies of liquid manure *may be given*. Your correspondent says, with regard to the different methods of growing celery, "that of Mr. Nutt is, perhaps, the best calculated to bring the plant to the gigantic proportions for which he is so celebrated." I wish, in reference to this, to say, that I have been a cultivator of celery nearly 20 years, but have only cultivated for competition one year (1848), and then I only cultivated six plants; out of the six plants I took prizes with five out of the six, being only allowed to show five plants. Two of these plants, when divested of lateral shoots, &c., weighed 20lbs. 14oz., being 5lbs. heavier than any two grown by Mr. Nutt. Which of the two methods is best I will leave it to your correspondent and your readers to decide.—John Turner, *Neepsend, Sheffield.*

To Build a Vine Pillar.—Procure some bricks from a brick-yard, which have been made in a mould which is the segment of a circle. Having laid foundations, cover them with a large flag-stone, or slate, to prevent the roots penetrating downwards. Procure bones, lumps of charcoal, soft bricks and old mortar, all broken to a size equal to that of stones for mending roads, and mix them well together in equal quantities. In the spring, as soon as the strong frosts are over, begin to erect the pillar, which is to be hollow, and one brick's width in thickness. When four bricks in height, fill it level with the composition abovementioned. Turn a strong vine out of its garden-pot—taking care not to break the ball of earth,—and plant it side-ways within the pillar, leaving two buds of the stem on the outside, where a hole is to be left in the brickwork large enough to allow for the swelling of the stem. A small quantity of rotten leaf soil may be put under and round the ball, and then the pillar may be erected, filling it with the composition as the work goes on. When the wall is about seven feet high, cover the composition closely over with bricks, using no mortar, or cement. The brick-work is to rise about another foot, and the space above the covering to be filled with good garden soil, and any flowers planted in it, according to the taste of the proprietor. A draining pipe may be placed vertically through the soil, so as to give opportunity of watering the composition in the pillar, when necessary, from long dry weather. Two or three vines may be planted in the pillar, in the way described, according to its extent of outward walling. The hardiest vines for this purpose are the Sweet Water, White Muscadine, Miller's Burgundy, Esperione, and the Black Cluster. It is advisable to prevent the cold water of winter having access to the inside of the pillar. The writer of this paper has two vine pillars, each of them nearly five feet in diameter (outside measurement); but they may be made of any size, not being less than three feet in diameter.—Rev. C. A. A. Lloyd, *Whittington, near Oswestry.*

P.S.—I have in my garden, two of the pillars I have described, and the vines grow quite healthy on both of them. Young vines require rich soil, but when older, do better in the composition in the pillar, which causes the wood to be short-jointed, as vines are in those countries where they flourish best. I raise a great many vines to give away to my neighbours, and I find the most expeditious way is by long branches, which are cut from vines in the autumn, managed on Mr. Hoare's plan. These are deprived of all buds but two, and the whole branch, is buried but the top bud, which should be near the wall on which the vine is to grow. In this way vines soon become fine plants.

Removing Old Fruit-trees.—Having occasion to take down an old wall, against which a Chaumontelle pear-tree had been planted about forty years, I tried the experiment of removing it to another situation. This tree was about twelve feet high, and wide in proportion. It was carefully taken up, so as to injure the roots as little as possible, the branches tied together, and then carried by several men and planted against another wall, which was lower, so that the tree was cut off at the top three feet. This removal took place in the winter. The following summer the tree looked but poorly. The second year it bore seven or eight pears, and made some wood; the third year it made a good deal of wood, and bore half a hundred of fine pears; the fourth (which is the present year) it has made some vigorous shoots, and borne fourteen pears: all pear-trees havé been very unproductive here this year. I am now, by degrees, cutting out some of the old wood, and training in the new. This is a proof that with care, old trees can be removed, and do well afterwards.—M. R.

Mode of Making Drills.—Some time since I noticed a letter in your publication with reference to the drill system of sowing seed, and recommending Cobbett's suggestion of a drill rake. I remember trying it some years ago, but from the nature of the soil, and, may be, a little awkwardness on my own part, I could never succeed. I then adopted, and have since continued, the following plan. I should premise that all my beds are four feet wide; wider than which will be found inconvenient in weeding and thinning. I use a straight pole, the size and shape of a common rake handle, about five feet long, with a cross piece of lath nailed on at about a foot from each end, so—  This is placed across the bed, in the situation of the first drill. I stand myself at one end, and place a boy at the other. We both place one foot on the pole, and at the same time press it moderately into the soil: we then take it off the bed, by the part projecting over, and slide it on to the place of the next drill (having first ascertained this by means of the cross piece, which may be graduated), where the pressure is repeated, and so on to the end. It is astonishing how fast this may be done, with a little practice; and the drills thus made, are easily distinguishable, and *must* be drawn correctly; indeed, the eye would soon be educated sufficiently to dispense with the cross piece altogether.—H. W. Livett.

Cheap Drill.—Turning over the leaves of the first volume of The Cottage Gardener the other day, I observed the remark, that you were not aware of there being any cheap drills to be had. It may appear out of season to name this now, but I may forget it before another seed-time arrives, and, if you think the following, which I found answer, will be of any service to your readers, they are welcome. Procure a sound cork, burn a hole through it, then insert a medium-sized quill in this hole, so as to project very slightly at the small end of the cork; take a dry bottle (a soda-water bottle answers very well), put your seed into it, but not more than will half fill it, then insert the cork described above, and it is ready for use in the following manner. Open a drill with the back of a rake, and, holding the bottle in a horizontal position, so as not to allow the presence of the seed to stop up the quill, shake it gently from right to left, over the drill, and, with a little practice, the seed will come out very regularly, which may be tried over a piece of paper. A year or two ago, having no proper drill at hand, and being anxious to sow some turnips, I made use of the above method; a man and a lad sowing half an acre of ground in an afternoon—one opening the drill, the other sowing—and had an excellent brood.—N. M., *Northwich.*

TO CORRESPONDENTS.

⁂ We request that no one will write to the departmental writers of The Cottage Gardener. It gives them unjustifiable trouble and expense; and we also request our coadjutors *under no circumstances* to reply to such private communications.

Sprouted Seed Potatoes (*J. M. P. and A Constant Reader*).—Plant them as soon as you can, during dry open weather; do not injure, and, of course, do not rub off the sprouts.

Doves in a Cage (*Colone*).—These do not require to be kept warm, but we should remove them to the shelter of an outhouse in severe weather.

Registers of the Barometer and Thermometer (*H. N.*).—Your thermometer against a post facing the north, and five feet from the ground, is well placed. The highest and lowest points indicated by the two instruments above named occurring in each twenty-four hours is all that you need record. There are two works you may consult with both advantage and pleasure, Belville on Barometers, and Thomson's Introduction to Meteorology.

Cactus not Flowering (*W. H., Cheetham*).—Your plant is luxuriant but does not bloom. Remove some of the soil in the spring and add a mixture of leaf-mould, &c., as recommended at page 44 of vol. 2. Do not give water during the winter, but treat your plant as there directed. *Laying in brocoli* is described at page 65 of the present volume.

Propagating Bulbs (*T. Evans*).—Tulips and hyacinths, and other bulbs, produce offsets which may be separated from the parent, and will become perfect plants.

Naming Seedling Flowers (*Thomas J.*).—There is no rule for naming these. To avoid adopting names already appropriated, it is advisable to adopt family or local names, and we think it useful to add some word descriptive of some prominent character of the flower, such as "Thomas's Purple," "May's Orange-spotted." Every seedling of your cinerarias and calceolarias will differ slightly from all others. You can only ascertain whether they differ remarkably and meritoriously by submitting them to the inspection of some eminent florist.

Greenhouse (*A Subscriber, Rye*).—We do not clearly see through the plan of your intended house for plants, to be placed at the end of your cottage, so as to enclose a portion of the chimney that proceeds from the living room. In all such cases, a few lines representing the back and front of the intended plant-house, position of the chimney, &c., would give a clearer idea than a page of description. However, with the heat emitted from the chimney, you will be able with the covering you propose, to keep all the hardier greenhouse plants, and to propagate in the spring. We would advise having a damper in the chimney, at nearly the height of the house; and in cold weather this should be put in so far as would give extra heat in the chimney in the house, and yet not so much as to send any back draught into the living room. In small places one or two strong iron plates might be substituted for the brickwork in the chimney. Where any of the finer plants are attempted to be grown, it is the cheapest in the end either to have a small flue or a pipe with hot water taken from a boiler at the side of the fireplace, with stop-cock to shut it off and on at pleasure. If you raise the house as you propose, as high as seven feet; then, instead of stepping over the front hall, we should prefer a door at one end; supposing the width to be seven feet, then you have a stage or shelves within. We should recommend the front wall to be from four to five feet in height. If you mean to set the plants wholly or partly on the ground, then a height of from two to three feet will be sufficient. The sashes should either be made to slide or be elevated by a toothed iron racket. If half are done one way, and half the other, you can always give both top and bottom air at pleasure. Glazing with three or four inch pieces of glass will answer very well, but not look so nice as long squares of 16oz. British sheet; but, of course, the latter will be more expensive. In *charring turf* you should not pile it into heaps, but expose only a portion at a time to the heating medium, removing that when charred and then placing more in its place. We presume you have *burned* the turf, not charred it.

Camellia in a Drawing-room (*J. J. Brixton, and A Subscriber*).—The camellia in your drawing-room, in which you have fires several times during the week, and which drops its buds and leaves, may do so from being kept too close or too dry. A *temperature* of from 35° to 50° will suit it; the medium between the two will be best. Keep it in the room, as near the glass as possible, during the day. In mild weather, with the temperature outside at from 40° to 50°, if you cannot open the window, the plant may be set on the window sill outside for a few hours. When the buds are swelling, a good deal of water is necessary: we cannot, however, tell you how often to give it, that will depend upon the state and number of the roots, the dull or bright character of the weather, and even the dry or moist atmosphere, and the high or low temperature of the room. We can, however, say, water it thoroughly when you do set about it, and then wait until your services are required again. Perhaps the inside of the ball is dry, and the water gets away by the side of the pot. If you have doubts of this, set the pot in a pail of water—temperature about 50°—for a quarter of an hour, and then allow the superfluous water to drain away, before placing the plant in its saucer, as it should not stand in water.

Mushrooms (*Ibid*).—These will grow nicely in an unused stall in the stable; and so they will do out of doors, with the cover as proposed; but far less trouble would be incurred by growing them in the stable, as much less covering would be requisite.

Frame for Plant-protecting (*Amateur, Thame*).—You have put one of your frames on a platform, standing on four posts 2½ feet from the ground, nailing pieces of boards, an inch thick, and about 6 inches wide, leaving an inch space between each board, to assist the drainage when required to give the plants water; upon this platform you put your frame, then laid an old mat over the bottom to prevent the materials, that might be used for plunging the pots in, falling through the spaces, and have put your pots in coal-ashes. Your plants, in this frame, consist of fuchsias, verbenas, cinerarias, and a few other sorts. You have thought of enclosing the underneath part, except at one end, and then about February or March filling the space underneath the frame with good prepared dung, for the purpose of stimulating the plants. You ask, would a little heat underneath the frame do any good at the present time, and whether, if you raise another frame in the same way, it will do for growing cucumbers. A little well prepared dung would be very useful under your frame in hard frosty weather, to ward off the frost; but after the middle of March such assistance would be rather against such plants as fuchsias, verbenas, cinerarias, as the usual complaint is that such plants grow too freely late in the spring, before they can be trusted out into sheltered situations. Good gardeners have grown *cucumbers*, as you propose, by introducing hot dung into a cavity below the bed; but the plan is dangerous in young hands. Perhaps, after all, you had better grow them in your usual way.

Bees (*T. M. W.*).—If your light hive, weighing only 15 lbs., be a swarm of the present year, discontinue feeding it till March, and then feed at the *top*; if it be a stock of two or three years standing, the 15 lbs. may consist chiefly of old thick combs and pollen, and, in that case, feeding must be continued in mild weather through the winter. The food recommended by Mr. Payne will do for the bees to add to their store; if your stocks have 15 lbs. of honey, do not feed till spring.

Keene's Hybrid Maize (*J. W., Sheffield*).—Our correspondent wishes to know where he can obtain a cob or two of this grain.

Diseased Hens (*Heydon*).—Wash the swollen eyes and nostrils with warm brandy and water as often as neccasary; give a peppercorn in dough three days a-week, and a grain of calomel in dough twice during the same time, but on different days. Keep the birds warm.

Apple Refuse (*W. D.*).—This, which you call, "Pomace, or dross of the cyder pressings," you may use as a manure to your asparagus bed, or to any other kitchen vegetable, without any fear of injury. It will speedily decay and become food for the plants. We should not lay it at the bottom of the new asparagus bed, but mix it now thoroughly with the soil.

Worms under Turf (*W. Newton*).—An ounce of corrosive sublimate dissolved in a gallon of water will bring all the worms which come in contact with it to the surface, and then strong lime-water from a rosed pot will kill them, or they may be swept up; but in fine weather a fresh set of worms will take possession of the place, so that a constant warfare against them must be kept up spring and autumn. Your proposal to cut them off by a layer of ashes under the turf, we have tried, but after the first winter they came up as thick as ever. Remember that corrosive sublimate is a deadly poison, and that the vanquished worms must not be given to ducks or other animals as food.

Grafting Vines (*Horticulturist*).—If the roots of your vines, twenty years old, are in sound condition, and you can rely on the wearing of the border, your vine-grafting will be a very straightforward and simple affair. Let the shoots intended for the reception of fresh kinds be cut off to the desired point forthwith. Apply a coating of white-lead to the wound when dry, for fear of "bleeding." Suffer the stumps to commence budding a little before you graft, and endeavour to procure a small growing twig beyond the grafting point. Scions for grafting must be immediately procured. Bury them in soil within a bud of their extremities directly. Graft them as other fruits, as soon as the sap is up, whatever the period; and, after securing the graft with matting, envelop the whole with moss, bound carefully and equally on. Of course, with old vines, the more you reduce the other parts of the vine by pruning, the more power you throw into the portion occupied by the graft.

Vines Planted too Deep (*Clericus*).—Yours is but too common a case. "Deep roots;" bad news this. We fear that there is no alternative but to commence at the outskirts of the border, and progressively to remove stagnant soil; introduce drainage beneath, and lift the roots to a higher level, blending your lime rubbish and mortar, or other drainage materials, with the upper stratum as the work proceeds. As a compromise, you may proceed then to within four feet of the house front, leaving the other portion, if needs must be, to give the plants an impetus towards possessing the new soil. In answer to your first query, what depth ought the roots to be? None deeper than thirty inches, but others as near the surface as possible. To your second query, when may I commence forcing? If you do not disturb the roots, why, you may venture, under your circumstances, to commence in the course of January. If you adopt our stringent plans, you must give up "forcing" this year. You will, however, be amply repaid for the sacrifice in the ensuing one.

Groups of Roses (*C. Jacomb*).—For the purpose of filling up a vacant space at each end of your trellis constructed to conceal your kitchen-garden, you wish for two groups of roses. At one end plant Princess Louise, Laura Davoust, and Princess Maria, with three of Gloire de Rosamene before them. At the other end plant Felecite perpetuelle, Crimson Boursault and Myrianthes, with three of the Gloire de Rosamene as on the other side. These six Gloire de Rosamenes must be cut down annually in April, which will keep the bottom of the groups thick and flowering until Christmas. Pillar roses require, as in this case, to have a strong and dwarfer sort for keeping the bottom full, and always when in groups. Two of the evergreens should be accompanied with a different flowerer; but of this we will ask Mr. Beaton to write fully.

Rosa Harisonii (*A Young Amateur*).—This is one of the dwarf briars, and is not suited for a wall, but will do in any soil or situation —rich or poor—wet or dry—in the sun or in the shade; but a light dry rich soil suits it best. The yellow rose, of which you heard, is very different from Harisonii.

Gladiolus Insignis (*J. M. P.*).—You find this throwing out shoots, for it ripened early, and the fine late autumn weather set it to grow again, and you cannot hope to stop it with impunity. Keep it free from frost, in soil not too dry or too wet, until the winter is over; but all of them will live out in a well-drained border, with a little protection. Your *crocuses* and *hyacinths* in a glass vase will do in your parlour where there is a fire daily, but let the crocuses have more air by placing them outside the window occasionally, in fine weather.

Names of Plants (*J. H. Clapham*).—1, Chironia jasminoides; 2, Send us a specimen in flower; 3, Calceolaria angustifolia; 4, Fuchsia microphylla; 5, Fuchsia conspicua arborea; 6, Stachys lanata; 7, Acacia lophantha; 8, Acacia plumosa. Although we know chrysanthemums pretty well, we are not quite certain as to the correctness of the following, owing to your imperfect blooms:—1, Grand Napoleon; 2, Unique; 3, Elvira; 4, Princess Marie; 5, Minerva; 6, Adventure; 7, Marshall Soult; 8, Bijou; 9, Goliah.

CALENDAR FOR JANUARY.

GREENHOUSE.

Air, admit at every favourable opportunity, whenever the temperature outside is above 35°, except in windy or foggy weather, especially among heaths, epacrises, and azaleas, that you do not wish to bloom early. Soft-wooded plants should be kept at one end of the house. **Bulbs** and hardy **Shrubs**, such as lilacs, azaleas, and roses, introduce from the forcing-house, placing them at the closest and warmest end of the house; calceolarias, cinerarias, geraniums, and Chinese primroses, clean, shift, and supply at times with manure water. **Climbers**, prune in, if not already done, those that produce their flowers on the young wood; others, such as Kennedyas, now flowering and growing, attend to: and especially train, every day, the tropœolums, if you wish to prevent confusion. **Fires**, light in close, dull weather, to enable you to give a circulation of air. Beware of heating too much when frosty, as, without due precaution, the atmosphere will be too dry; it is better to use coverings for the glass. **Succulents**, unless growing and showing flower, refrain from watering. **Water** other plants only when requisite, and perform the operation after breakfast, using water rather higher than the medium temperature of the house. Place a few achimenes, gesnera, and gloxinia-roots, into heat for early blooming. In a conservatory or greenhouse, where no hard-wooded plants to speak of are grown, and where a medium heat of 50° can be maintained, Poinsettia pulcherrima, Euphorbi, and Jacquiniflora, &c, may be introduced from the stove. **R. Fish.**

FLOWER-GARDEN.

Annuals in borders keep free from fallen leaves or other litter; and, if the weather is fine, sow a few more at the end of the month. **Bulbs**, see that mice or rats do not get to them: fresh soot keeps them off for awhile. **Cuttings** of various hardy deciduous shrubs, climbing roses and the like may yet be put in. **Edgings**, see that they are in good order; slate edgings are the best, then box: either may be laid this month. **Grass**, keep it clean and well rolled. **Hedges**, evergreen and otherwise, may be yet planted and dressed. **Layers** of evergreens or deciduous shrubs may be made as the borders are cleaned. **Manure**, in composts, apply to such flower-beds as may require assistance; and in a solid, rotten state to all roses. **Mulch** all newly-planted trees, &c. **Potted plants** in reserve-garden secure from frosts. **Planting**, push forward in mild weather. **Prune** and regulate every tree or bush which requires it: be more sparing with evergreens. **Ranunculuses**, if the soil is dry, plant a lot for another succession. **Roses**, prune, plant, and dung, if not already done: and wash them with strong lime and soot paint, to kill moss and insects. Seedlings and all young plants protect according to their hardihood and strength. **Suckers**, pull up and destroy, unless wanted for increase, as those of some roses, &c. **Trench** vacant ground. **Walks**, roll as soon as they are dry after rains or frost, and keep them regularly cleaned. **Weeds**, destroy everywhere. **Wheeling**, reserve for frosty or very dry weather. **D. Beaton.**

ORCHARD.

Almonds, plant. **Apples** (espalier) prune, &c.: plant, &c. **Apricots**, plant: prune and train in frosty weather. **Brine**, apply with a scrubbing-brush to stems and branches of fruit-trees, to destroy insects, eggs, and moss. **Cherries** (wall and espalier), prune and train: plant. **Chesnuts**, plant. **Currants**, prune: plant. **Cuttings** of gooseberries, &c., may be planted. **Drainage**, attend to. **Espaliers**, prune and regulate. **Figs**, plant: protect from frost. **Filberts**, plant. **Fork** the surface around fruit-trees. **Gooseberries**, plant: prune. **Layers**, plant. **Leaves**, collect for various uses. **Medlars**, plant. **Mulberries**, plant. **Mulch**, put around newly-planted trees. **Nectarines**, plant: prune and train in frosty weather. **Peaches** (see nectarine). **Pears**, plant: (espalier), prune, &c. **Plums**, plant: (wall and espalier), prune. **Pruning**, attend to generally. **Quinces**, plant. **Raspberries**, plant: prune, and dress. **Services**, plant. **Snails**, destroy in their torpid state. **Stake** and support trees newly-planted. **Standards**, remove dead and irregular branches from. **Suckers**, plant. **Strawberries**, top-dress and protect. **Trench** and prepare borders, &c., for planting. **Vines**, plant, prune, and train. **Wall-trees** generally, prune and regulate. **Walls**: it is a very beneficial plan to paint these by means of a whitewasher's brush, with a liquid mixture of 8lbs. lime, 4 lbs. soot, and 8 lbs. sulphur. It destroys and banishes insects, as well as by its dark colour promoting the warmth of the wall. The liquid employed, in which to mix the above, should be urine and soapsuds—in equal proportions.

Any trees proposed to be regrafted in the spring may be *headed down* now in open weather, but the stumps of the branches should be left sufficiently long to permit a few inches more to be cut off at the time of grafting. **R. Errington.**

FORCING STRUCTURES AND PLANT-STOVE.

Air, admit, as often as circumstances permit. **Apricots** (see peach). **Asparagus**, continue a succession. **Bark-beds**, stir, and renew, if heat declines. **Cherries** (see peach). **Cucumbers**, in pots, introduce: water frequently over head, but rather sparingly at the roots, and train. **Currants**, water when necessary. **Figs** (see vines): they should be in pots in the vinery—if set in pans all the better. **Flowers**, in pots (roses, carnations, &c.), introduce. **Gooseberries**, water frequently. **Head Down** soft-wooded plants exhausted with blooming. **Kidney Beans**, sow in small pots—about seven-inch: increase the size of the pots as the days lengthen; use now light and rich soil; water frequently. **Light**, admit as freely as possible. **Mushroom-beds**, carefully protect. **Protect** glass in very severe weather, even in the daytime, but under such circumstances do not keep up a high artificial heat: let it be several degrees lower than in favourable weather. **Nectarines** and **Peaches**, in blossom keep at about 55° during the day, and at night about 40°; water very sparingly; shake branches gently to distribute the pollen; stir earth around often. **Pine Apples** (fruiting) may require increased bottom-heat to about 90°: water when requisite: if plunged, and the floor damped, they need but little: temperature in houses from 60° to 65°. **Salading**, in boxes, sow. **Stove**, temperature, not above 60° in the day, and at night 40°. **Sea-kale**, introduce successively. **Strawberries**, in pots, introduce: when blossoming, water frequently, and ventilate freely: day temperature not more than 60°. **Thermometer**, watch its dictates out of doors, and regulate your fire occasionally. **Vines**, in leaf, keep about 60°: in blossom, about 70° during the day—at night 55° to 60°; protect stems outside by haybands, and the roots by fermenting matters. **Wash** the leaves of all plants, as requisite, either with a sponge or by watering. **Water**, soft and warm as the house, apply as requisite: in pots, &c., keep constantly in the house.

The *temperature* of the plant-stove should not be higher than 60°, by means of fire-heat, even where the most tender orchidaceous plants are growing. At night it should not be higher than 50°, and even 45° is not injurious. *Prune* and put into good order the heads of specimen plants. Many may be cut down altogether: for example, Aphelandras, Justicias, Poinsettias, &c. After they have been cut down keep them dry for two or three weeks. Cut away, but do not tear off, the *sheathy envelopes* covering the buds at the bottom of the stems of orchideæ. If these sheaths are allowed to continue the water remaining in them causes decay. **R. Errington.**

KITCHEN-GARDEN.

Artichokes, attend to, shelter, &c. **Asparagus**, plant in hotbed: attend to that forcing: temperature about 65°, and at night 50°. **Beans**, plant, b.: earth up early: protect from frost: plant in hotbed. **Beet** (red), plant for seed. **Brocoli**, protect from frost. **Cabbages**, plant, e.: sow, e.: plant for seed. **Cardoons**, attend to, shelter, &c. **Carrots**, sow small crop: plant for seed. **Cauliflowers**, in frames, and those pricked out, attend to; sow, e. **Celery**, earth up, shelter, &c. **Composts**, prepare and turn over. **Cucumbers**, sow and prick out; temperature by day 70° to 75°, and at night 65°. **Dung**, for hotbeds, prepare; wheel on to vacant ground. **Earth**, for hotbeds prepare. **Earth up** and fasten plants disturbed by frost, &c. **Endive**, blanch, protect. **Frost**, protect plants from, by temporary covering. **Ground**, trench vacant. **Horse Radish**, plant, e. **Hotbeds**, make and attend to. **Jerusalem Artichokes**, plant, e. **Kale** (Sea), force, b. **Kidney Beans**, sow in hotbed, e. **Lettuces**, in frames, attend: transplant, to force: protect from frost; sow on warm border, e. **Liquorice**, plant, e.: and dig up three-year old. **Melons**, sow, for fruiting in May: day temp. 75°, night 65°. **Mint**, force, in hotbed. **Mushroom Beds**, make, and attend to those producing; procure horse droppings for. **Mustard and Cress**, sow in hotbed. **Onions**, clear from weeds; examine stored; sow a small crop, e.; plant for seed. **Parsley**, sow, e.; protect from frost. **Parsnips**, plant for seed. **Peas**, sow; earth up; shelter from frost; plant in hotbed; and prepare sticks. **Potatoes**, plant in slight hotbed. **Radishes**, sow in hotbed; sow in border, e. **Rape**, (for salading, sow in hotbed); (edible-rooted), sow, **Rhubarb**, force, b. **Salading** (Small), sow. **Savoys**, plant for seed. **Spinach**, clean and sow, e. **Tansy**, plant in hotbed. **Tarragon**, plant in hotbed. **Turnips**, plant for seed. **Weeds**, continually destroy, and do any work which will lessen that of the following busier months. **Woodlice**, destroy in the mushroom-house by trapping under dry hay, and scalding it in hot water; or by baiting small pots with boiled potatoes, or slices of potatoes under dry moss.

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WEEKLY CALENDAR.

M D	W D	JANUARY 3—9, 1850.	Weather near London in 1849.			Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
3	Th	Bay-shouldered Button-moth seen.	T. 32°—23°.	E.	Fine.	8 a. 8	1 a. 4	10 39	20	4 47	3
4	F	Rosemary flowers.	T. 35°—32°.	E.	Rain.	8	2	11 51	21	5 15	4
5	S	Wren sings. [Day.	T. 34°—26°.	N.E.	Rain.	8	4	morn.	☾	5 42	5
6	Sun	2 S. af. Christ. Epiphany. Twelfth	T. 35°—19°.	N.E.	Fine.	7	5	1 1	23	6 8	6
7	M	Plough Monday. Usher-moth seen.	T. 38°—30°.	N.W.	Rain.	7	6	2 7	24	6 34	7
8	Tu	Lucian. Furze Apion Beetle found.	T. 40°—34°.	S.E.	Rain.	7	7	3 12	25	7 0	8
9	W	Redbreast sings.	T. 47°—37°.	S.W.	Rain.	6	9	4 15	26	7 25	9

Epiphany.—The name of this festival is derived from a Greek word, signifying *appearing*, or *manifesting*, because the Christian church celebrates that revelation of Christ to the Gentiles, or heathen nations, which is recorded in the second chapter of St. Matthew's Gospel. Of the nature of the star, or of the revelation which informed the learned men, or magi, of the East, of the birth of our Saviour, we have no information beyond the recorded fact. The names of the three magi, as preserved by the most ancient ecclesiastical historians, are Melchior, Jasper, and Balthusar; and the offerings they made to the infant Christ are believed to have been symbolical—the *gold* of his sovereignty, the *frankincense* of his divinity, and the *myrrh* of his sorrows and humiliation. This festival was first observed A.D. 813. It is called *Twelfth day*, because held twelve days after Christmas day; and the whole of these days, by a law of Alfred the Great, were ordered to be kept as holidays. In the cider districts of Devonshire and Cornwall, on the eve of this festival, many an old orchardist, attended by his workmen, still visits each of his choicest apple-trees, and, in goblets of cider, they thrice drink some such a toast as this:—

Here's to thee, old apple-tree!
Whence thou may'st bud, and whence thou may'st blow,
And whence thou may'st bear apples enow!
Hats full—caps full!
Bushels full—sacks full!
And my pockets full too! Huzza!

This being done, they return to the house, the doors of which have been bolted during their absence by the females, who will not admit them, however inclement the weather, until they have guessed the nicety that is roasting on the spit for supper.

Plough Monday, or first Monday after the close of the Epiphany, was a rural festival instituted by our forefathers on the occasion of their resuming the labours of the field. "*Plough Monday*," says Tusser Redivivus, "puts them in mind of their business. In the morning the men and the maid-servants strive who shall rise earliest. If the ploughman can get his whip, or other field implement, to the fireside before the maid hath her kettle on, then she loseth her Shrove-tide cock, and it wholly belongs to the men. Thus did our forefathers strive to allure youth to their duty, by providing them innocent mirth as well as labour.

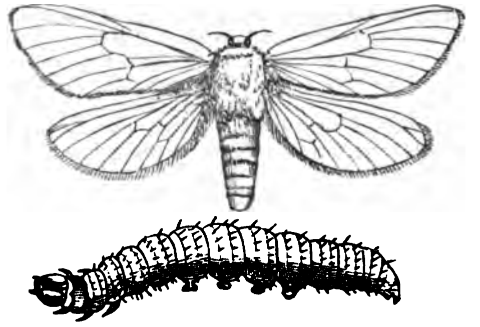
Meteorology of the Week.—We have now entered upon the coldest fortnight of the year. The average highest temperature of the above seven days, from observations made during the last twenty-three years, is 40.6°, and the average lowest temperature during the same period 30.9°. The greatest natural heat during these years occurred on the 7th of January, 1845, when the thermometer rose to 45°; and the most extreme cold was on the 7th and 8th in 1841, when the thermometer fell to 6°, or twenty-six degrees below freezing. During these last twenty-three years there have been of this week 107 fine days, and 54 during which rain fell.

RANGE OF BAROMETER—RAIN IN INCHES.

Jan.		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
3	B.	29.302 29.084	30.013 29.947	30.205 30.107	29.860 29.626	29,974 29.924	30.440 30.335	29.700 29.663	29.919 29.845	26.744 29.696
	R.	—	—	—	0.24	—	0.06	0.14	—	—
4	B.	29.185 28.978	30.005 29 929	29.977 29.884	29.726 22.510	30.142 30.141	30.008 29 828	29.782 29.746	29.974 29.817	29.784 29.764
	R.	—	—	0.12	0.05	0.02	0.04	0.04	—	0.14
5	B.	29.376 29.316	30.051 30.008	30.020 29.772	29.569 29.241	30.110 30.073	30 134 30.085	29.890 29.832	29.641 29.542	29.908 29.760
	R.	—	—	0.06	0.40	0.08	—	0.05	0.08	0.01
6	B.	29.631 29.518	30.311 30.168	30.080 29.997	29.407 29.199	30.100 30.084	30.060 29.998	30.065 29.976	29.799 29.719	30,011 29.995
	R.	—	0.01	0.01	—	—	0.02	0.02	—	—
7	B.	29.760 29.698	30.450 30.445	29.917 29.589	29.656 29.558	30.239 30.206	30.327 30.203	30.057 29.986	29.591 29 478	30.061 29.894
	R.	—	—	0.14	—	—	—	0.01	0.21	0.31
8	B.	29.893 29 866	30.410 30.316	29.377 29.311	30.125 29.834	30.232 30.137	30.576 30.451	30.197 30.069	29.724 29.570	29.589 29.553
	R.	—	—	—	—	—	—	—	0.02	0.11
9	B.	29.738 29.441	30.233 30.140	29.659 29.206	30.326 30.303	30 089 30.047	30.621 20.529	30.333 30.111	30.190 30.005	29.591 29.483
	R.	—	—	0.09	0.08	—	—	—	—	0.08

Natural Phenomena Indicative of Weather.—As long ago as the days of Aratus and Virgil, it was observed that the croaking of *Frogs*, when more general and louder than usual, indicates the approach of rain. Yellow frogs being numerous in the hay-field is considered, by the mowers, a sure sign of fine weather. *Geese* washing themselves or taking flight with unusual energy and noise, portend rain. When *Wild Geese* and other migratory water-fowl are seen flying in unusual numbers to the southward or westward, they indicate the coming of severe weather, and their early appearance is usually a forerunner of a hard winter.

Insects.—At this time may be found, and indeed throughout the winter may be found, the larva of the Ghost Moth in its winter quarters, especially in and near hop-grounds. It is a hollow, excavated beneath a stone, exactly of the size of the larva, and lined on all sides with silk. The caterpillar of this moth feeds upon the roots of the hop. It is the *Heptalus humili* of some naturalists, and the *Phalæna* and *Gorgopis humili* of others. The sexes of this moth differ in colour more than those of any other British moth. Our drawing represents a male of the natural size, and its wings on the upper side are pearly white; but the females are yellow, veined with orange. She lays a great number of small black eggs, resembling grains of gunpowder. The male being often seen taking his curiously pendulous flight over the grassy graves of churchyards of a summer's evening, gave to this insect its popular name.



We love old customs,—we cherish and we retain every one of them that our forefathers practised; we have our pancakes on Shrove Tuesday, plum puddings on family birthdays, and a yule log on the Christmas Eve fire; nor do we ever omit kind, seasonable greetings to our friends: therefore, to each and all of our readers, do we say most heartily, "A happy New Year to you." May a blessing be upon you all, and may no ill befal anything beneath your roof-tree, or that comes beneath the sway of your spade, pruning-knife, and glass shelters; may your cabbage tribes be without club roots, your apples without canker, your grapes unshanked, your potatoes undiseased; and may you learn to grow well-formed pelargoniums, without a bundle of training-sticks. Now, this last portion of our wish reminds us of the revived taste for standards of these flowers. We say *revived*, because Miller, and others of the old writers on floriculture, evidently grew them in this form, for they speak of various kinds of pelargonium, with stems five, seven, and even ten feet high. But whether the mode of growth be of recent or more ancient suggestion is of little consequence, for a good revival is always to be preferred before an inferior practice of modern invention, and this revival is good beyond all dispute. We believe that it will be found good, among other advantages, because that in the same space of greenhouse room very much more bloom may be introduced than by the present system of cultivation; and that the specimens may be made to assume a freedom and elegance of form never even dreamed of at present.

We extract the following relative observations from the just-published *Gardeners' Almanack* for 1850:—

"We saw a curious experiment tried last year to obtain *standard pelargoniums*, which succeeded perfectly; and we are persuaded, when the plan becomes better known, it will become general; and a greenhouse filled with this family, treated after the manner we are now to describe, will produce four times the quantity of bloom that can be had from plants trained in the "squat" manner of the present day, and at least double the quantity of plants or kinds may be grown in an equal space. The experiment was confined to two plants of the *Queen Victoria* pelargonium—a dwarf variety; but we hear that the gardener who conducted the experiment is so well pleased with his success, that he has already prepared for extending it to a large number of sorts, and we entertain no doubt of his success. The two plants referred to were only 10 inches high in October, 1848, and in three inch pots. Instead of "stopping" them they were encouraged to grow on, and confined to a single stem. Early in November they were placed on an end-shelf in a stove, close to the upright glass, having head-room sufficient and to spare. This was the coolest part of the house, and the light from the roof and end-glass was as much as any plants under glass could receive. With this stimulus, and with occasional watering with manure-water, and two shifts, the plants were full four feet high by the end of the spring, eighteen inches of the bottom being quite brown and without leaves, these having slowly died away as the plants ripened their growth. The plants then flowered a few strong trusses, and were removed to a greenhouse about the end of May. They were planted out into a rich border in front of a wall, and the very tops picked out, in order to get bushy tops to them; they were also supported by stakes. After flowering a second time, at the end of June, the whole stems, from the ground upwards, broke out into strong lateral shoots, and in this condition the plants were taken up on a wet day in September, the shoots much thinned and regulated, so that the plants were perfect cones, nearly five feet high, and well clothed all the way. In future they will be treated in the usual way, cutting the side shoots close in after flowering, but still keeping the main leader at full length; and, if at any time they get naked below, a season in the open border, it is believed, will see them clothed again. Such plants take up little more room than the pots they are growing in, and when they are well flowered make splendid objects."

The only drawback to this system of training, if it can be esteemed a drawback, is that it requires more judgment than the old system requires; and that we may aid our readers to carry it into practice, we have requested Mr. Beaton to give us the results of his experience on the subject.

EVEN the preparation of seedsmen's catalogues has felt the influence of the utilitarian spirit which is outspreading over all classes and all lands, and instead of being, as they were formerly, a mere enumeration of different seeds deserving of cultivation, they now include much information so useful as to be worth the amateur's attention to preserve them. Foremost among these improved catalogues is one now before us, entitled "*General Catalogue of Garden, Agricultural, and Flower Seeds, sold by W. E. Rendle & Co., Plymouth.*" It gives of every plant a sufficient description, with the heights where needed, and the times for sowing or planting. For example:—

"*March till May.*

"BEET.—*Rendle's Superb:* a very superior dark variety, of great merit.
Cattell's dwarf blood red: an excellent sort.
White's black: large and fine; can be highly recommended.
Perkins' crimson: very fine colour and flavour.
White Silesian, or *Sugar*.
Silver, or *Sea-Kale:* the midrib of the leaf dressed similar to that vegetable.
White, or *Spinach Beet*: an excellent substitute for spinach, and affords a succession of leaves during summer."

We have also received, but too late for notice until next week, "*A Selected Catalogue of Seeds, sold by D. Hairs*, 109, *St. Martin's Lane.*" It contains a list of *forty-seven peas*. We shall have something to say about these.

As the information contained in these catalogues has increased, so also has the cost of the seeds they enumerate diminished. "A complete collection of 20 quarts of peas, and all other (kitchen-garden) seeds in proportion, for one year's supply," for fifty shillings. Now, to compare with this, we happen to have some bills sent in by the celebrated *Stephen Switzer* rather more than a century ago. Switzer was the first man who wrote practically well upon gardening, had been gardener to the Earl of Orrery, and finally became a seedsman and market gardener, having a garden at Millbank, and selling his seeds at a stand in Westminster Hall. One of the bills is as follows:—

To the Rt. Honor'ble the Lord Fairfax,
Per Stephen Switzer.

Feby. 27th, 173½.

	£	s.	d.
2 lbs. French furze seed, 3s 6d; ½ lb. Lucerne, 16s		19	6
½ lb. Dutch clover, 17s; 1 doz. garden mats, 8s ..	1	5	0
1 oz. endive, 6d; 1 oz. white Cos lettuce, 9d; 1 oz. purslane, 6d		1	9
1 oz. alisander, 4d; 2 ozs. Spanish cardoons, 18d; 2 ozs. brocoli, 18d		3	4
1 oz. red cabbage, 1s; 2 ozs. melon, gourd, &c., 2s 6d		3	6
½ oz. tomato, 6d; 1 oz. finochio, 1s..		1	6
2 ozs. Turnip radish, 1s; 100 cytisus plants, 5s ..		6	0
1 gallon Hander's Hotspur pea..		2	0
2 qts. Marrowfat pea, 1s; 2 qts. Spanish *Mulatto*, 1s		2	0
1 oz. cauliflower seed, 3s; 1 peck Windsor beans, 2s		5	0
Box		1	6
	£3	11	1

THE FRUIT-GARDEN.

ARRANGEMENT OF FRUIT-TREES.—At the commencement of the career of THE COTTAGE GARDENER, the best mode of arranging fruit-trees in the cottager's garden was taken into consideration; it remains for us to consider what can be done for a similar arrangement in the garden of the amateur's, whose object is by no means the same as that of the cottager.

For the sake of dealing with principles rather than imposing mere rules, we will suppose the case to be a new enclosure of about one acre, surrounded by a new garden wall; such cases are every day occurring in the neighbourhood of our large towns; and although not strictly cottage gardens, yet they require so many things in common, that we feel bound to extend our observations to them.

It will be necessary to suppose, that the great first steps in garden-making have been taken, and taken in the right direction. We allude to thorough draining in the first place, and to trenching—or, at least, a levelling and equalisation of the available soil, in the second.

Now, a garden, a square, standing according to the four cardinal points, and possessing what is termed "a slip"—that is to say, a small outward inclosure, in order to render the exterior portion of the wall available for training purposes, offers a great variety of aspects of a decided character.

Our main purpose in introducing this subject, is to invite attention to a reconsideration of the whole affair of arranging fruit-trees in kitchen-gardens; for we seem "spell bound" with one set practice, which may or may not be right, but requires that its main features be examined, in order to see whether its continuance is perfectly consistent with our new ideas of a dwarfing system. Such will grow in repute in spite of the old orchard practice, inasmuch as it has thoroughly proved itself to be *alone* adapted to the wants and habits of the amateur or the tradesman, who have neither so much land nor so much time to spare as their wealthier neighbours.

It must be obvious to all who entertain this question in a proper spirit, and with some ardour, that since our dwarf or miniature fruit-trees are planted on the principle of encouraging surface roots in preference to deep or tap roots, that spade culture must either be set aside in the immediate vicinity of the miniature fruit-trees, or that some modification of the ordinary modes of cropping must be adopted. Such, we say, is quite plain, for it is entirely owing to the indecisive character which pertains to the question of fruit culture under a dwarfing system, that we find such a mixed medley in many gardens, the owners of which cannot see their way sufficiently to induce them to adopt a more decided course.

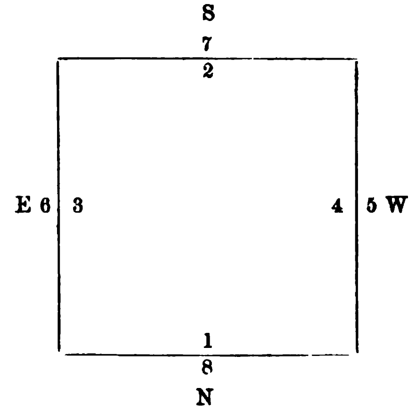
Under our views, therefore, of a dwarfing system, the whole subject resolves itself into a mere root question; that is to say, borders or stations having been prepared for fruit-trees, the appropriation of the marginal portions thereof must be, at all times, made subservient to the course of root management which it is deemed necessary to carry out, in order to render the dwarfing system complete. In former days, it was supposed that it was impossible to dispense with a south border, or, indeed, with any other borders as to vegetable culture: and the spade, that great enemy to our more tender fruit-trees, was at work the whole year over the surface roots of our wall-fruits, in preparing rich beds of soil for the grosser vegetables, as cauliflowers, spinach, &c., thus continually preventing the ascent of those fine fibrous roots, on which, and their proximity to the surface of the soil, it is now so generally recognised the welfare of our superior fruits so essentially depends.

It has been proved beyond all possibility of doubt, that all our vegetables—even those for very early purposes—may be equally well cultivated on slopes artificially made in the ordinary quarters of the kitchen-garden. Certainly there may occasionally occur a difference of a few days in the first dish of strawberries or early peas, but even this is somewhat doubtful, provided proper means be taken; but, admitting it a fact, what is the benefit, compared with the cost?

As before observed, it is almost impossible to do justice to our superior fruits, whilst this practice is pursued. A very superior gardener, indeed, fully imbued with the importance of attending to first principles, irrespective of the old routine practice, might manage by rich surface culture to produce early crops without material injury to the roots; but we must have a race of cultivators much superior to the present, as they are ordinarily met with, before such a course can be recommended with safety.

BORDERS.—We now proceed to recommend what we consider by far the safest course to pursue in laying out a new garden in accordance with the above principles. In the first place, if vegetable culture is not to be taken into the account as far as the borders and margins are concerned, it is evident that the borders need not be so wide as hath been customary. We consider six feet in width sufficient for any wall, if not more than ten feet in height, which height may, perhaps, be quite up to the average of small gardens. Now, there are those, of course, who will take affright at the idea of only six feet, after being used to borders of some twelve or fourteen feet. We know, however, by experience, that six feet unmolested, unless by a system of top-dressing, will conduce more to the stability of the tree, than twelve feet under the old cropping system. There will be no necessity, in making a new garden, to keep the new border totally uncropped until the trees are established. If no bush or other fruits are planted on its margin (a course, by the bye, we shall be induced to recommend in the sequel), a regular system of cropping may commence from the moment the trees are planted, reserving one yard next the wall, on which nothing may be sown or planted. In this case, it will be necessary annually to retreat a little farther from the wall with the spade—nine inches should be given up annually; and thus, in three years or so, the extension of the roots will have driven the spade completely away.

ARRANGEMENT OF FRUIT-TREES.—Turn we now to what in our opinion would be a better policy still, and that is, to plant the whole of the margins with the bush fruit and the trained espaliers, whether horizontal or pyramidal. Here would be such an unity of purpose, that, once established on proper principles, the most ignorant jobber could not get wrong; a matter of some satisfaction to the employer, who, if a commercial gentleman, has, of course, little time to attend to his garden. If this course be adopted, there would be a variety of aspects for the marginal espaliers or bushes, equally adapted to their respective habits with that of the walls. The subjoined sketch will show what we mean.



Thus for the margins.

1. Flemish pears.
2. Black currants and rasps.
3. Cherries and plums.
4. Apples.
5. Red and white currants.
6. Gooseberries.
7. Pears.
8. Gooseberries.

For the walls.

1. Peaches and nectarines.
2. Morellos and late plums.
3. Cherries and plums.
4. Pears.
5. Apples.
6. Pears.
7. Apricots.

It may be observed that the numbers, as above, refer both to the wall trees and to the trained or dwarf espaliers on the margin of the border. The numbers 3, 4, 5, 6, may be transposed if necessary; for it is not very material how they are changed, provided Nos. 1, 2, 7, 8, are kept for the objects here specified.

Admitting, then, that the walls were nine feet in height, and the borders six or seven feet wide, the wall-trees might be fifteen feet asunder. We would then plant one bush fruit or one espalier fruit-tree in the angle on the margin, at about three feet from the front walk; thus there would be just as many marginal trees as wall-trees, and the roots of the one jutting in between the other two; the whole border ultimately would be a mass of fibres. Such being the case, spade-culture must be dispensed with; and, in lieu thereof, a top-dressing might be applied every May, close on the heels of a rainy period; this would long preserve a steady moisture, and be the means of annually inducing a net-work of fresh fibres close beneath the surface.

It must here be understood that the pears must be on the quince stock, the apples on the Paradise, and the whole root pruned at whatever period they might become too luxuriant. This, however, would scarcely happen above once, and that would be after they had been planted a couple or three years, and before they were taxed through heavy bearing; afterwards, the shallowness of the soil would prevent undue luxuriance. As to depth, that will be explained in future communications under the head "station-making," indeed, it has already been pointed out. Half-a-yard we consider a very proper depth to carry out such objects, all other matters receiving proper attention. Those who can understand this view of the matter, will see the whole, taken together, form a system based on the thorough ripening of the wood, and the necessity for dwarfing trees in small gardens, both these objects lying the same way. The whole, therefore, must be kept intact, and unmixed with other plans, or, otherwise, the whole rejected.

R. ERRINGTON.

THE FLOWER-GARDEN.

HARDY CLIMBERS.—Every book, magazine, and newspaper which treats of gardening, has given full directions how to manage hardy climbers for many years past; and one would think that, as far as our readers are concerned, what Mr. Appleby wrote on the subject would be enough for some years; and I like his advice on climbers better than nine-tenths of what I formerly read respecting them. If we had not been yoked in the same plough, I should be jealous of him about climbers, for in that department they say I have been very successful, but I was an old gardener before I could hit upon the right way of dealing with them; and I am quite sure that there is no part of out-of-door gardening which is more likely to puzzle a young beginner than the right management of climbers; indeed, our weekly correspondence is the best proof of the fact.

When climbers are planted in a good rich border, they grew away so rapidly after the first year or two, that before one finds out the best way to train them, or prune them, they get so inextricably entangled together, that the amateur fears to touch them, lest he should do more harm than good; and if they are thus allowed to have their own way for a few seasons, they are sure to get naked below, and top-heavy; so that, comparatively speaking, they do not produce one half of the effect they are capable of doing under a proper system of management. On the other hand, when little stunted climbers are turned out of pots, in which their roots have been much cramped, or from layers insufficiently rooted, into an ill-conditioned soil, they exhaust one's patience before they do much good; and of all the plants we grow, that gorgeous climber, the *Glycine sinensis*, or, as it is often called, the *Wistaria*, is the worst to move on if once it gets into a bad condition. I have known this fine plant make nearly twenty feet of growth the second season after planting, and I have seen it seven years without making a yard of growth. I have been more often called in to doctor this plant than any other, and the best plan that ever I found to cause it to push along freely, was to unnail it from the wall, and, without cutting off any portion of it, to bend it down gently, so as to make a sharp turn just above the surface of the ground, and then nail it in that position along the bottom of the wall. Before I thought on this plan, I had cut them into various lengths, and down to the last eye at the collar of the plant; and I am quite satisfied now, that no mode of cutting this plant, with a view of getting it round from a stunted to a vigorous condition, is half so effectual for the purpose as that of bending it at the collar, and laying it along as I have said. The reason for this seems to be this: when a languid, hide-bound *Glycine* is cut down, the sympathy, which is well known to exist between the roots and branches of all plants, being cut off, the circulation of the sap is too sluggish to cause the dormant bud or buds at the collar to push; whereas, by bending down the shoot, this sympathy is merely arrested in part; and, when the bent shoot comes into leaf, the leaves immediately draw the sap towards them, and, as it rises from the roots, the passages for it are much contracted at the bend, and the dormant bud then receives the largest portion of it, or, at any rate, a better share than any of those buds beyond the bend; and by-and-by, this lower bud opens out into a new shoot, which, being soft and pliable, the sap flows into it very easily. A few fresh leaves come next, and then a practical illustration of what I said a week or two back—that a few healthy leaves have more power than a great number of them in a languid state, like those that are on the bent shoot.

Any time before the beginning of May will answer to bend down plants of the *Glycine*, and I cannot recollect any other climber just now which will not do as well by being cut down at once, if they are very stunted; nor do I think that it is necessary to retain the bent portion of the *Glycine* after the young shoot attains a height of five or six feet. Almost any young plant of a tree, or shrub, that is hide-bound, stunted, or has lost its leader, may be made to assume a new existence, as it were, by the same process of bending down the top as far as possible, and retaining it in the bent position for a season or two, by a firm tie or two to a stake.

Any plant that is apt to make suckers may be more easily renewed by cutting it down to the collar, and by selecting one of the most promising suckers for the future plant, and destroying the rest; but many plants, as the pinuses and cedars, would die if cut down to the collar; but all of them yield to the bending-down mode, and throw up a new plant, just as I have said of the *Glycine.*

This experiment was first proved in the botanic garden at Glasgow, just five-and-twenty years ago; and I recollect very well the sensation it caused among gardeners, when Mr. Murray, the Curator, published the facts connected with the experiment in the *Gardener's Magazine*. The Chinese broad-leafed fir (*Cunninghamia lanceolata*), was the subject of his first trials; thus a wide gate was thrown open to gardeners to enter the field of experimental inquiry, which they soon did, and found the harvest easier to reap than many of their best advisers could at first believe. Many plants that are now as common as blackberries were extremely rare in those days, and consequently high-priced; so that collectors of *Pinuses*, at least, were compelled to put up with plants of some of the kinds that were raised by cuttings, or else to go without them; and it was well known that such plants, in many instances, would not make upright, handsome trees, like those reared from seeds; but all of them yield to the process of bending down horizontally, and produce a tree in all respects as handsome, natural, and durable, as if it had been reared on the same spot from a seed; and the application has since been widely adopted with many kinds of plants without, as far as I could learn, a single instance of failure.

But to return to climbers: let us suppose a strong *clematis* of some sort; for almost all of them are apt to get too naked below, and to form a profusion of young growth at top. How is such a plant to be dealt with this winter, to bring it within the requirements of those practical gardeners who write in these pages, or men like them?—for, after all, such must be our Mrs. Grundy. Well, then, put up the ladder, and set to work with the knife; but, first of all, let me ask you if you know how the flowers of these *clematises* are produced? On the young, or old wood; on spurs, or on what?—for that is my criterion for judging a pruner. Unless he can tell me in January how such and such plants produce their flowers next summer, I know full well that all his prunings are mere chance work, and may do more harm than good. Most luckily, for our present purpose, this *clematis* flowers on the wood of the current season, like the grape-vine; so we need not mind how much of those shoots of last years' growth need be cut away, provided that one of the bottom eyes of each be left. But as the bottom of the plant is very bare, I wish you could save three or four of the young branches, and we shall train them down to cover the bottom until we can get a supply of young wood in all parts of the tree. Now, all the young wood is got rid of, except those four long shoots to cover the bottom; and we can now arrange the rest with ease. You see, for want of cutting in the young wood to one or two eyes every winter, the whole of the shoots that grew for the last four or five years have extended up to the top, and made their young wood there, leaving all below quite bare; and not only that, but the first, or original, shoot was not pruned or cut down, the first winter after planting, and the year following it began to grow just two yards from the ground, and you see the consequence now—the first six feet of this rampant plant is just as bare as a May-pole—not a twig nor a branch growing from it up to that height, and all above that having three times more shoots than are wanted. Nobody knows how many thousands of good climbing plants of all sorts are, at this moment, to be seen in all parts of the country in not a whit better condition than this clematis which I have selected for example, for it is one of our commonest plants, and may be taken as the best representative of all the climbers that bloom on the wood that is made the same year. But as some of the *clematises*—for there are many sorts of them—are apt to make suckers from the bottom, and therefore can hardly ever get bare below, I must now say that our example-plant is the common sweet-scented one, called Traveller's Joy, Old Man's Beard, White Vine, and many more names in different parts of the country, and in books *Clematis vitalba*. Now, this plant is not at all willing to make suckers after it gets old, with a thick hard stem to it, and therefore is one of the most difficult to deal with when once it is allowed to run up a long way bare of branches.

Another object I had in view in fixing on it is, to show how one part of a plant may be grafted or inarched into a part of itself; for, in this instance, we shall be forced to resort to that plan, unless, indeed, the plant will be forced to make suckers as outlets to the large quantity of sap which cannot flow to the top, now that we have taken so much of it away. Now, my pruner is a hearty, honest fellow, although he does not well comprehend the principles of his art; but unless he has been out last night, or rather this morning, at a dance, or at some family gathering, he must understand this lecture on the clematis, and I might safely leave him here to finish the prunings of our example-plant; but, for the sake of others at a distance, we had better finish it. Four long shoots of last year's growth are let free, and the rest cut to one eye at the top, and the greater number of the older shoots had issued from about the middle height, or above six feet high of the stem. The next process is to select a middle-sized shoot, and cut it down to the last joint, or say, a trifle above the last joint, from the naked stem, and next May a shoot, or perhaps two shoots, will grow from this joint, giving us new wood down to within six feet of the ground, and next year we shall cut down this very shoot to the same place, only one joint higher, and all the rest of the shoots between this one and the top of the plant we cut at intermediate lengths, and so every winter in future, unless we wish to cover more space with them. In that case a young shoot, or shoots, are left longer and trained that way, and any time in the summer when the young growth extends too far for the space allowed, their tops may be cut off without prejudice to the flowers, for they come out from the sides of the recent wood lower down. The four long shoots are now trained down to fill the bottom, and next spring we shall inarch two of them into the old stem near the ground, to furnish young wood from the bottom. D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

WINTER CONSERVATORY PLANTS. — For several weeks we have adverted to the means to be used for preserving plants, when placed in rather unpropitious circumstances: believing that such statements would meet the position of many lovers of flowers, whose means do not allow them to obtain greater and better conveniences. We shall now advert to a few plants that are extremely useful for ornamenting a warm greenhouse or conservatory during the winter; but most of which, from being what are termed stove-plants, can only be enjoyed by those who have some other structure, in which a higher temperature can be maintained, at certain seasons, than would suit a greenhouse, where the chief object during winter is merely the exclusion of frost. By a warm greenhouse, or conservatory, we mean a house where the temperature ranges from 45° to 50° during winter, with an allowance of from 5° to 10° rise from bright sunshine. The plants, when in bloom, will stand at times a lower temperature than we have indicated; but, if continued, the colours of the blossom will be inferior, and the buds will not open freely.

Cactus truncatus, now named the ***Epiphyllum truncatum***.—The family name is from *epi*, upon, and ***phyllum***, a leaf, owing to the flowers being produced upon, or, as in the case before us, at the end of the leaf-like branches. *Truncatum* is from *truncus*, chopped off, owing to the appearance of the points of the jointed shoots. It is a native of Brazil. In almost every catalogue and dictionary that has come in my way, midsummer is set down as the period of its flowering; but, though it may be made to blow at almost any time, I have always found it did so to most advantage in the months of November, December, and January, when flowers are the most grateful and cheering. Its individual pinkish blooms stand longer than most of the *Cactaceæ*. As soon as the plants have done blooming, they should be kept in the same warm greenhouse; or, what is better, removed to any other stove, or forcing-house, or pit, where a still higher temperature is maintained; kept near the glass; exposed to sun; encouraged to grow with manure-water; set out in the middle, or towards the end, of July, on the south side of a fence, exposed to sun and air, but defended from rains; allowed to get dry in September; set in-doors during October, full in the sun; the front of a vinery, where a little fire was wanted to ripen the wood, would just be the place; give a temperature of 50°, at least, and water the roots toward the end of the month; and by the middle of November they will be coming into bloom, and may then be moved to the flowering-house. By adopting the main features of this system, you may grow the plant in a common greenhouse; but then the season of rest and dryness must take place in winter; and you could not expect flowers until late in spring, when plenty others of the same group will be in bloom. As a successor for this winter blooming, we mention the *Speciosum*, but it wants a longer period of rest and dryness, and should not be started with heat and moisture before January. In the case of young plants which you are more anxious to grow than to bloom, the putting them out of doors, or even drying them in winter (if you can keep them growing on), may be dispensed with.

Propagation.—The *E. truncatum*, like all other Cactaceæ, is easily propagated by cuttings. These, as in the case of other succulents, succeed best when the cut end has been previously dried; and even then, instead of inserting them in a pot in the usual way, they will root more quickly if placed in some shady corner, and the ends covered with rough leaf-mould and fine gravel. Many succulents are easily struck by this rough method, which are apt to rot and damp when put in pots among fine soil. As, however, the plant we are considering seldom rises above a foot or fifteen inches in height, even though its branches should extend a yard in diameter; and as, in addition, its shoots have naturally a pendulous habit, it is greatly improved in appearance by being grafted upon some of the stronger-growing kinds. The *Pereskia acuminata* (the only family in the group possessing true leaves), was, and is, used for this purpose; but I find that splendid plants can only be kept in good order for a few years, owing to the great difference existing between the succulent graft and the comparatively hard and woody stem of the stock. Of the strong growing kinds, the ***Cereus speciosissimus*** seems to answer admirably for a stock; for the low and weak-growing kinds, such as ***truncatum, truncatum violaceum***, and the beautiful small-branched ***Russellianus***; while many of the whip-like creeping kinds, such as *C. Mallisonii*, and *C. flagelliformis* (creeping cereus), are improved from being grafted upon it, at the height of several feet, and their shoots allowed to hang in a pendulous manner. The mode of grafting is extremely simple. Cut in a sloping manner, so as to remove the bark from both sides of the scion, giving it thus a wedge-like shape; make an incision at the top of the stock to receive it, if your object is to obtain an umbrella-looking plant; or at the base (or by sloping notches along the side of the stock, each of which is to be furnished with a scion), if you prefer having a bush. If the scions are small, the glutinous matter exuding from them and the stock together, will hold them in their places; but, to make sure, it is advisable to stick through them both, with a fine wooden pin (a good prickle from a thorn hedge would answer admirably); and, to make assurance doubly sure, tie round the join with a strand of matting, and shade with a little moss. Keep the plants slightly shaded and growing freely, and the junction will soon be complete.

Soil.—What we use for this, as well for cacti in general, is three parts sandy, hazely, fibrous loam, and one part of each of the following: lime-rubbish, charcoal, and dried cow-dung.

2. *Poinsettia Pulcherrima:* this belongs to the *Euphorbiaceæ*, or *Spurges*.—The generic name was given in compliment to its discoverer in Mexico. Its specific name is very appropriate for it—it is *very beautiful*. The beauty, however, consists not in the flowers, for they are quite lost sight of amid the blaze of the bright crimson scarlet *bracts*, or floral leaves. For the colour to be the most vivid and dazzling, the plants should stand in a temperature of 60°, with

plenty of unobstructed light, and so placed that they should be *below* rather than above the eye of the spectator. There will also be this advantage, that the lower part of the plant will be concealed, which can with difficulty be made to look handsome, unless it has been well stopped, and had abundance of room. In such a warm greenhouse as we have indicated, however, the plants will be very attractive for several weeks. In treating it entirely as a stove plant, it becomes a mere work of routine. In using it for conservatory decoration, there will be no difficulty, if any means exist for procuring more heat in spring and autumn, than can be found in a common greenhouse, as during summer plenty of heat can be obtained in a cold pit by merely keeping it rather close. For the satisfaction of those who wish to give it a trial, it may be useful for them to know that *young* plants generally present the most brilliant appearance. When their beauty is departed, the plants may be placed in a corner out of the way—allowed to get rather dry—cut down within two or three eyes of the old wood, just before the buds begin to break in spring, say March—the wounds allowed to heal and dry—water then to be given to the roots—when the buds have fairly broken, shake away the most of the old soil, and repot with fresh earth, using sandy loam and peat, with a little leaf-mould and pieces of charcoal—set the plants in a good growing heat, if plunged at first in a cucumber-bed all the better—stop several times during July—syringe and water during the season, and harden off as it advances. The parts cut off are not to be lost, as already stated; they make rather the best plants. Cut them up into as many cuttings as you require—forget not to be generous after being just; let them dry for three or four days; strike them in sandy soil, in a nice bottom-heat, under a glass; and then pot, shift, &c., the same as for older plants.

Euphorbia Jacquiniæflora.—This belongs to the same natural group as the last. The generic name was given in honour of a celebrated physician of antiquity. Its striking beauty consists in the scarlet sepals of the calyx, which are clustered together into racemes at the end of the pliant shoots, that bend down scarcely sufficient to expose their splendour. On this account it is advisable to have the plants young and dwarf, that the masses of bloom may be seen below the eye. It will stand longer in the conservatory than the last, and, upon the whole, is easier managed. A similar treatment as respects resting, cutting down, stopping, and propagating, will answer admirably, only it requires a more sandy turfy peat, and will not dislike some bits of charcoal, and some broken bricks. Even when in its dry state, neither it nor its predecessor should be much exposed to a temperature under 45°. It must have no resting time during the summer, if good plants are to be obtained from cuttings in spring; a nice moist bottom heat to start them with will be of great importance. I must leave to younger and more poetical heads the task of expatiating upon its fitness for decorating and wreathing the glossy ringlets of their lady-loves. Robert Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

Section III., Part 2nd: Moisture.—Under this head we shall first notice watering with the garden-pot; secondly, with the syringe; and, thirdly, giving moisture to the air. Each of these points must be attended to by the beginner. There is a right way of doing everything, and no other way will answer so well. Of course, this rule applies to watering orchids as well as to every other operation in gardening. We believe we practice the right way, and shall endeavour so to describe that practice as to make it easy to be followed by those to whom it is unknown.

Watering with the Garden pot.—As a general rule, let it be laid down never to water an orchid except it requires it; therefore, in commencing to water, observe each plant well, but quickly, and water accordingly. The question may here very properly be asked, when does an orchid require watering? The answer is, when it is growing and dry. The quantity to be given depends, again, upon the stage of its growth. If the young shoots and new roots are just beginning only to make their appearance, they require a very moderate quantity; but as then the plant ought to be repotted, and the new fresh compost is or should be moist of itself, the water must be withheld until the surface, at least, feels quite dry to the touch. Again, the water should be applied at a small distance from the young shoots, which ought never to be saturated, or even wetted, especially either in the dark cloudy days of winter or of early spring. In summer, when the heat is increased, the sun shining, and air given, the operator need not be so nice, as the extra water will soon evaporate, and dry up even from the young and tender shoots. When the young shoots begin to form pseudo-bulbs, the quantity of water may be increased, care being taken that it does not lodge in the leafy sheaths which surround the green or young bulbs, especially of *Cattleyas*. We have often seen a year's growth destroyed by allowing the water to lodge in those tender parts. The way to remedy this is with a sharp knife, or a small pair of scissors, to slit open to the bottom the sheaths that hold the water, but this is an operation that must be done very carefully, without injuring the young pseudo-bulb, or the cure will be as bad as the disease; for, if you wound a pseudo-bulb, ten to one it will perish. As soon as these sheaths turn yellow, and not before, they may be entirely removed safely. When in that state they will easily part from the bulb without injuring it, if carefully pulled off.

The garden *watering-pots* we prefer are used both with and without roses. The rose should be used when the plants are newly potted, and afterwards for such as are in large pots and have partly formed their pseudo-bulbs. The kinds of rose also require some consideration. They ought to be quite flat, and thickly pierced with holes, and those rather larger than ordinary, to let the water flow freely. When the spout only is used, it should have the hole at the end smaller than ordinary for the purpose; this is to enable the waterer to apply that liquid in just such quantity as the plant requires. When the growths are young, whether the water is applied with the rose or spout alone, it will generally be quite sufficient to wet the earth, or compost, only round near the edge of each pot. If the water is poured indiscriminately all over the surface of the compost, especially in the early season of the year, the consequence will be to endanger the young shoots. At that season, and in that state, if the water is slushed upon the plants, it will cause several, if not all, of the tender young growths to perish; but as those growths begin to approach their usual size, and the warm, long, sunshiny days prevail, that is the critical or very time orchids require an abundance of water—you can scarcely over-water them then. When we remember that in their native countries there prevails a wet season—that is, when it rains almost day and night for a couple of months—and that during this wet season they recover from the effects of the hot dry one, and make the pseudo-bulbs that flower so beautifully, this will sufficiently warrant us to imitate such a season, by using, during the latter part of their growth, a superabundance of water. By such liberal treatment, we obtain a strong fine growth, which will, if properly rested, reward us with their magnificent bloom and delicious fragrance for all our pains. We remember a case in point.

Several years ago, we had a *Dendrobium fimbriatum*, a large plant, growing in a shallow pot, in a mixture of peat and broken pots. It stood upon a platform near to the glass. In the month of April it began to grow freely, sending up about twenty young shoots. The water was given to it at first in small quantities; but when the shoots attained a foot in height, the quantity was increased. Every morning it was, in addition to the water given at the roots, deluged with water overhead from the syringe. It continued to grow freely and strongly, and, with this liberal supply of moisture, the shoots eventually reached between three and four feet in length. About the middle of July, the quantity of water was gradually reduced, and by the middle of August it was entirely withheld. The plant was placed still nearer the glass, and more air given. The consequence was, a consolidation of substance, and an appearance of ripeness in the long stout pseudo-bulbs; the lower leaves began to turn yellow and drop off, and the plant was at rest. In the April following it began to grow again, and at the same time to show flower-spikes on every one of the pseudo-bulbs, previously formed, that were so strong. Eventually, it flowered in the month of June, and produced more than two thousand of its beautifully fringed, yellow, crimson-spotted flowers. It was exhibited at Manchester, and obtained the highest prize. We entirely attribute this success to the free application of water during the season of growth. If every other good point of culture had been given to it, but the watering either neglected or but partially administered, the result would have been poor growths and few flowers. We must, for the present, leave this interesting subject of watering, with this remark, that at all seasons of the year the water used must be of nearly the same temperature as the air of the house. This is a very essential point, which we need not insist upon—its common-sense application must be evident to every one.

Routine Work for January.—If our instructions under this head, for the last month, have been attended to, everything will be ready to commence potting. Examine the plants, and observe if any buds are beginning to swell at the bottom of the last-made pseudo-bulb. All that have the buds in that state may be potted forthwith. At page 20 of this volume, a full and particular account of the best method of *potting* is given. To that page we refer our readers. The instructions may be summed up here in a few words. Use shallow, wide pots, half, and, for some plants, two-thirds, filled with drainage. We often use, for large pots, a small one inverted over the hole at the bottom, instead of a large potsherd. We think this answers better, especially if cockroaches are in the house. These vermin cannot enter so easily into a pot so drained. Round this small pot fill up with rather large pieces of broken ones; place the smallest pieces over the top of the small inverted pot. This will be found an effectual way of draining an orchid. Use the light fibrous peat, and let the plant stand upon a small hillock in the middle. *Water.*—As it often happens that more artificial heat is given this month, on account of the frosty weather, the plants will require more water to their roots than in the last month, more especially such as are growing. *Air.*—If such a thing should occur as a mild sunny day, take advantage of it, and give, for two or three hours, a little fresh air. It will greatly assist the young growing plants, as well as sweeten the internal atmosphere of the house. *Syringing.*—Plants on blocks will be beginning to make new roots and fresh growths, and should be more frequently syringed. Syringe also the walls, paths, and pipes occasionally, to give moisture to the air of the house, more particularly towards the end of the month. If you have any shallow cisterns, such as are described at page 64 of this present volume, they may now have a thin stratum of water poured into them to evaporate into the air. We shall refer to another successful mode of moistening the internal atmosphere by-and-by.

FLORISTS' FLOWERS.

Now winter has come in good earnest, the greatest care must be taken to prevent frost from injuring our pots. *Auriculas* and *Polyanthuses* must be kept as dry as possible without flagging. We, at the request of a correspondent, give, this week, a list of twelve of what we consider the very best kinds of auriculas. Remember the *Ranunculus bed*; let it be turned over this month and levelled, ready for planting about the second week in February. The *Tulips*, also, will require protection, not only from frost, but also from heavy rains, or heavy falls of snow. *Dahlia roots* must be looked to, to see that they are all right. If any are decidedly decaying, or actually rotten, they must be removed from amongst the rest, or they may infect the whole lot.

TWELVE FIRST-RATE AURICULAS IN FOUR CLASSES.

Green-edged.	*Grey-edged.*
Booth's Freedom, 5s.	Cheetham's Lancashire Hero, 20s.
Leigh's Col. Taylor, 12s.	Fletcher's Ne Plus Ultra, 7s. 6d.
Page's Champion, 6s.	Page's Waterloo, 3s. 6d.
White-edged.	*Selfs.*
Ashton's Bonny Lass, 5s.	Headley's Royal Purple, 7s. 6d.
Campbell's Robert Burns, 5s.	Kaye's Jupiter, 7s.
Lightbody's Fair Maid. 12s. 6d.	Netherwood's Othello, 2s. 6d.

T. Appleby.

THE KITCHEN-GARDEN.

Routine Work.—The commencement of a new year reminds us of the near approach of a busy season for the cultivators of the soil. Manuring vacant spaces of ground, trenching, digging, ridging, banking, forking, and scarifying the soil at every opportunity, should now be well attended to, in order to establish a healthy openness for receiving the seeds and plants in early spring. These operations, besides being a good preparation for the succeeding crops, render the soil free from weeds and vermin, and in a pulverized condition for the growth of the crops which are to follow.

Cauliflower Plants,—if the weather be severe, should be slightly protected, but not covered so closely as to induce them to grow and become drawn; for plants thus weakened, when the season arrives for transplanting them, generally button, or form small heads unseasonably. On the other hand, plants which have been managed as we direct will be healthy and sturdy, ready to commence a rapid growth when the season turns in their favour. A slight covering, with air given night and day, and dry dust applied about them, if the earth is wet and cold, are highly beneficial. Plants established in a dry soil through the winter months must be early looked to and water given. This remark applies more particularly to plants in pots, for by keeping them in a dry state too long after the time when they should be growing, renders them more likely to button.

Sowing Cauliflowers.—Those who have the convenience of a hot-bed, or other structure artificially heated, should now sow a little seed in a pan. Prick out the plants, as soon as up, into other pans, and from thence under hand-glasses, or some other slight protection, on a rich open soil. By these means, fine cauliflower plants may be obtained for planting out in the open soil by the first week in March.

Cabbages.—If the weather be open, continue to assist the early cabbage plants by frequent surface-stirring, keeping them clear from decayed leaves, and filling up vacancies from the store-bed. Sow a little seed in a pan, if plants are likely to be scarce in the spring, and treat them as recommended above for cauliflower seedlings.

Early-sown *peas* and *beans*, and the autumn-sown *lettuce* plants of all sizes, should have a slight application of dry dust of an evening, after cold rains, snow, or sudden thaws. Such sudden changes, and morning frosts, cause great destruction among such seedlings by producing canker or shanking of their stems. Moderate heat should be maintained about *asparagus* in forcing, and successive slight hot-beds made and treated as previously directed. Beds of asparagus, now in production, should be supplied occasionally with liberal soakings of tepid water, with a small quantity of salt dissolved in it. *Cucumbers* should be carefully attended to, and a moderate temperature maintained whilst the days are short. From 68° to 72° are now sufficient for growing plants, whilst those in bearing may be allowed, with advantage, five degrees more. Fermenting materials should be collected, and well worked. Make slight hot-beds for potatoes, radishes, carrots, early turnips, &c.

Mushroom Bed-making.—The following, though in answer to a correspondent (*G. Tasker*), yet being of general applicability, is placed here. A cart-shed can be very easily converted into an excellent mushroom house. Warm and gentle moisture have much to do with the growth of the mushrooms. How often, in August and September, do we hear country people, the best observers of nature, say, "This is a beautiful morning for mushrooms, it is so warm and muggy!" We must imitate such mornings; therefore, if the shed is covered in with slate or tiles, the space between the rafters inside should be well stuffed with straw of any kind, which can be fastened up by nailing cross strips of boards from rafter to rafter. Then, after the bed is made, spawned, and finished, the front of the shed may be stopped up with thick and well-thatched hurdles, which would be warmer and better than any other thin permanent enclosure. These hurdles can be readily opened whenever light is wanting, either to examine the beds, or to cover, or to uncover, or to collect the mushrooms. It is also convenient to be able to open the house opposite where you wish, either to get in fresh materials to make a new bed with, or to take out an old one. If the length of the shed be from 21 to 30 feet, it should give a large supply of mushrooms during the winter and spring months. The beds should be made along the back of the house. Previously to making up the beds, a board, about nine inches high, should be placed as a frontage-board, from three to four feet distant from the wall, which is a nice width for the bottom of the bed. This front board may be supported upright by driving three or four short stakes into the floor. The bed may be from two to three feet high at the back, sloping down to nine inches in front, which will give a very convenient width to reach over for all necessary purposes. Have the materials ready to make the first bed about the last week in August. Let this occupy one-third of the length of the shed. Make up another of the same size about the last week in October, and the remaining third about the first of January. The principal part of the materials should be horse-droppings, mixed with a little dry, short, husky litter; and, if a few dry cow-droppings be broken up and mixed with it, all the better. The materials may be all placed in the shed at once, where the bed is to be made up, and they must be turned over to equalize and sweeten from three to five times. In making up the bed, let the whole be worked well together, and made as solid as it can be by beating with a fork, and the surface made smooth and even. Insert a stick to tell the temperature of the bed by; let it stand five or six days, after which time, the heat of the bed will be gentle if all has gone on well; but, if found too hot, shake up the materials of the bed again to let off the rankness of fermentation. Do this twice a-day until the bed begins to be on the decline, and, drawing out the stick, it is found to be of a steady warmth of about from 50° to 55°. The bed then may be spawned. Insert the spawn about one inch and a half below the surface of the materials of the bed, either in moderate-sized lumps, or several bits put in together; make the whole surface smooth and even, and solid, and cover it with earth that is not too wet or too dry, which should be run through a sieve first, and should be of kindly adhesive nature, like that from an old pasture. This covering should be about from one to two inches thick. When the whole surface is covered over, it should be watered with a very fine-rosed water-pot, and beat down with a very bright spade, so as to make the surface plaster-like. Make use of no more water than will suffice. You had better apply to some respectable nurseryman for your mushroom spawn. Another year, probably, plenty would be found in the old beds. Always prefer mouldy hay for covering the beds with, but do not cover them too bountifully when newly-made, for fear of increasing the heat too strongly for the spawn.

James Barnes and W.

MICELLANEOUS INFORMATION.

OUR VILLAGE WALKS.

(No 13.)

I always feel, when the old year has been swept away, and the new one has begun, as if we had spring in possession. I immediately watch for the lengthening days, and I fancy I can see to write and work earlier and later, long before a perceptible change really takes place. This is a harmless fancy; but may it not lead to one that tends to destruction? May we not as hastily, and as completely, forget the *spiritual* past, which time can *never* sweep away? Our days may become brighter and clearer, trials may be removed, rough places may become smooth, all may go well with us, and we may say to ourselves, "Peace, when there is no peace." Let us remember that there can be but one change in the spiritual life—that which is from death unto life—when "old things" have for ever "passed away"—when "all things have become new." This thought may be repugnant to some of us, but it is *true*, and of intense importance. We have begun a new year in time—let us examine our progress towards eternity, that as we launch forth again on the waves of life's restless tide, we may feel that we are indeed, and in truth, the "homeward bound."

We hear stirring sounds in the woods already. The interesting labours of the woodman have begun, and very soon after the fall of the copse-wood, up spring the glad primroses, and violets, and wild anemones, that have so long laid dormant beneath the shade, as if delighted once more to meet the sun, and to expand their simple, beautiful blossoms under the influence of his rays. How soon the admission of air and light calls into life the exquisite things of nature that sleep beneath the soil; and how soon does the earth mantle with verdure, and cover itself with flowers. A newly-cleared coppice, with its piles of hoop-chips and faggots, the picturesque figures at work, the wild plants springing up cheerily, and the birds warbling away among the yet leafless trees, like a concert of Jenny Lind's, is, certainly, one of the most delightful scenes that the early spring affords. But before this lovely season greets us, we have, or hope to have, the enriching influence of frost and snow. The mildest winter seldom passes without them: and it is one of the most beautiful of nature's changes, when earth, and tree, and stream, are covered up with snow. There is then a deep stillness in the air, and the boughs of the graceful evergreen droop, as if wearied and oppressed with their soft burden. Lightly as it falls, and feathery as is every separate flake, what weight there is in a fall of snow. I have often raised the lower boughs of cedars and spruce firs, to release them from its pressure, and although there might be but a sprinkling on their leaves, yet every bough seemed pinned to the earth, and sprang gratefully up when the snow fell from it. There is an indescribable *something* in our feelings, when we just look out upon a snow scene, though we have seen it year after year. Yesterday all was green and open, every road, every path, every object clearly defined; to-day we look out almost on vacancy—scarcely a hedge-row can be seen, every house and tree seem like large heaps of snow, and the streams that give such beauty to a landscape, are either totally covered up, or appear like rivers of ink. The few figures we see move silently along, with their rough garments wrapped more closely round them, looking black, and cold, and comfortless, while the poor little birds hop printlessly over the smooth white surface, or sit silently in groups on the house-tops. What a scene of stillness and desolation, yet how beautiful! And when the bright sun looks out, and lights up the scene with thousands of sparks like diamonds, it is like Fairy-land, indeed. I once witnessed one of those sudden changes, for which our climate is remarkable, and it was very striking One bright sunny morning, in the spring, some years ago, I walked to the house of a friend, enjoying the beauty of the scene, which was green, and gay, and lively. I returned in three or four hours, nearly over my shoes in snow, which had, in that short space of time, shrouded the whole country, and turned the glowing scene of spring into the depth of winter. It spoke loudly of the "changes and chances of this mortal life;" *chances* which God appoints, and which meet us at every step. Who can tell, when we go forth in the morning, how the day, that looks so well, will close around us? Yet the same hand that scatters the snow-flakes, and covers up the budding earth in that cold mantle, can cause the bright sunbeams to melt and disperse it as quickly as it fell. Need we then sorrow as those without hope, when troubles and disappointments fall heavily upon us? Let our winter walks teach us some lessons too; and let us, as we plunge through the snow, remember the beauties that lie beneath it, and the blessings that are, for a little season, hidden by the trials of our earthly pilgrimage.

A snow scene reminds us also of those regions of almost perpetual winter, where so many of our fellow-men dwell amid dreariness and gloom. When we see the warmly-thatched roofs of our British cottages fringed with sparkling icicles, yet gleaming *sometimes* with cheerful light within, should we not think of those dark northern lands, of those dark northern homes, where for so many months our sun is never seen, where so much of human life is passed in dismal huts, deprived of the joyful light of heaven, and almost of its air? Yet these fur-clad children of perpetual snows are watched by the same Eye, fed by the same Hand, and redeemed by the same Blood, as those who possess far greater worldly blessings. They dwell apart from many joys and many beautiful things, but they love their icy mountains and barren plains as dearly as we love our trees and flowers; and the bright warmth of their short summers cheers and refreshes them, and gives them some country pleasures, perhaps like ours.

Let our comparatively short and cheerful winters fill our hearts with gratitude to God. He has placed us among unnumbered blessings—the light of our brilliant sun can only be exceeded by that "True Light, which lightens every man that cometh into the world;" and the few dark and stormy months we see, do but wed us to our happy homes, and give us cause yet more to bless Him, who so unwearedly gives us "all things richly to enjoy."

CALCEOLARIA CUTTINGS.

HAVING just seen the last two numbers of THE COTTAGE GARDENER, being the first of the series that have fallen in my way, and thinking that communications on practical subjects, however trifling, may be of some service to your readers, I am induced to make a few additional remarks to Mr. G. Penny's paper on striking calceolarias, which I trust may be useful.

Some years ago, after having put in what I expected an abundant stock of cuttings of all kinds of bedding-out stuff, I was unexpectedly called away, and left their management to other hands. This was early in September, and I felt not a little annoyed, on my return, at the end of October, to find that scarcely any of my favourite celceolarias were growing, although the verbenas, petunias, &c., had done well, and showed signs of good treatment, which, I was told, was the same as the calceolarias had. Judging, then, that something radically different must be wanted to make them strike freely, I determined to put in a batch of cuttings, at that time taken from the plants in the flower beds, and inserted from twenty to thirty in a 24-pot; these I placed under a hand-glass, in a shady place, my frames being then full of other things. The healthy appearance they soon presented, while they were almost continually wet, convinced me that they liked the treatment; so that when we digged up the flower-beds for the winter, in the beginning of December I put in another batch of cuttings, and treated them in the same way. Even at that late period I found their tenacity to life so strong, that they were able to withstand the decaying influence of so much moisture, and repel the advance of mould, &c. Of course I protected them from frost, and soon after stored them away in pits, with other things. The autumn continuing mild, I afterwards put in a few pots of cuttings, in the middle of January, taken from plants that were growing in the borders, and which had, nowithstanding, endured a pretty sharp frost; these I placed on the shelf of the greenhouse, in rather a shady part, and even these did well; so that, amongst the whole lot of cuttings that I put in, I don't think more than one or two per cent. failed. Ever since then I have practiced the same with equal success, never putting in my winter stock of calceolarias until the middle or end of October. They will certainly do very well if taken off sooner, and kept damp, and in the shade; and if large plants be wanted in spring, of course it would be advisable to treat them so. But with me space in winter is very limited, so that I am (and I believe many others are also) obliged to concentrate our stock, that all my bedding-out plants stand over winter in the cutting pots. I may observe, that the calceolarias I treat as above are all shrubby kinds; and if Mr. Penny's Kentish Hero be, as I have seen it to appear, half shrubby, then I think the same treatment will suit it very well. The kinds I grow are old *vicosissima*, (than which I know no better yellow), the old *rugosa*, *integrifolia*, and a straw-coloured one, with a dark one or two, and a useful clouded one, but all having only local names useless to mention here. It may be useful to the amateur for me to say, that I have tried very late and damp propagating, as in calceolarias, with several other things, but I don't find it succeed so well as the usual method, except in the *Gaillardia*, which certainly does equally as well as the calceolaria. I am trying some other things this autumn, the result of which I will, if you think well of it, apprize you of hereafter, as well as my method of early spring management of bedding-out plants, especially calceolarias. In the mean time, should there be any of your readers dubious of the stock they have got, and have a few plants in some place in the flower borders, where they can get a few cuttings from, I earnestly intreat them to try a few pots. I am convinced they will not be disappointed, and the amateur who has no pit or greenhouse, might try a pot or two in the window of any outhouse, taking care to move them, if required, when severe frost sets in.—J. N. V.

[*You are quite wrong* in thinking that "we do not invite communications," and we shall be very glad to receive your proffered contributions. *We are very ready to insert genuine information from any one.*—ED. C. G.]

EXTRACTS FROM CORRESPONDENCE.

STRIKING CUTTINGS, AND PROTECTING THEM DURING WINTER.—Many of your readers, like myself, are only amateur gardeners, with small gardens, and have not the conveniences of either pit, frame, or greenhouse to aid their operations; nevertheless, with a little management, and a comparatively small cost, it is quite possible to look gay nine months out of the twelve. My plan for striking and protecting cuttings is this: I select a vacant spot, say 8 feet by 6, cover it with two inches of sand, dig and mix this in till the whole is well incorporated; then, at each corner drive in a stake, leaving it one foot out of the ground; upon these four stakes nail four splines, so as to form a frame, and across this frame, at intervals, fasten strands of rope-yarn (the strands of an old cable are best); let these be recrossed in like manner, so as to produce squares of one foot in diameter, and the work is finished. To accomplish this, it will take about an hour, and the cost of materials will be sixpence. If this frame be made at the end of August, cuttings and slips of hardy perennials and biennials may be inserted under it till the month of December, and will require only occasional watering, and the shade of a few whins or fir branches laid on the top. As winter approaches, secure the branches by drawing their ends in under the strands; and in April, when uncovered, a fine collection of healthy, well-rooted young plants will be ready for removal to the flower-borders. Many of the half-hardy perennial and biennial kinds may be thus preserved. The same kind of frame does equally well for the autumn-sowing of hardy annuals; and those who know the superiority of these over spring-sown ones, will not fail to have a lot thus ready to bed out.—S. P., *Rushmere.*

PROTECTING PEAS FROM MICE.—The following method of preserving autumn-sown peas from the attacks of mice was communicated to me by a friend, who has practised it with singular success. He pounds some rosin very fine, puts his peas into water just to make them wet, then sprinkles the rosin over them, and, by its adhesion to the peas, gives them such a disagreeable taste that the mice will not touch them.—JOHN ROBINSON, *Ardsley, near Barnsley.*

[Although this mode of protection is not new, it may be unknown to some of our readers.—ED. C. G.]

HEATING BY GAS.—Having seen in THE COTTAGE GARDENER for November, a statement respecting the heating of a greenhouse with gas, and in other numbers there seems to exist much prejudice against this mode, I think it desirable to give you the result of an experiment on this method of heating a greenhouse. In the spring of 1848, we erected, what was intended to be a summer-house, but soon changed our ideas, and turned it into a greenhouse; and, as nothing was provided in the erection for heating the house, we had to contrive, as winter approached, some way for the preservation of our plants, and determined to give gas a trial, which we did, and in every way it has answered the purpose. We have not observed the slightest injury to the plants. The size of our greenhouse is 9 feet long, by 8 feet wide; the stove 28 inches high, 12 inches wide. The latter consists of an inner tube about 8 inches in diameter, and the outer case. There are six burners between the cases, and by a tap they can be regulated to any heat desired. The air flows from the bottom of the inner tube to the top, which is perforated. The products of the combustion of the gas pass between the inner tube and outer case to the chimney. I shall be glad if this information is of any service to any of the readers of your valuable publication.—CLARICE R. ECCLES, 43, *Roscommon-street, Everton, Liverpool.*

TO CORRESPONDENTS.

⁂ We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense; and we also request our coadjutors, *under no circumstances*, to reply to such private communications.

ROSES FOR ARBOUR (*W. Williamson*).—You had much better not plant climbing roses at all against your arbour, one side of which is 4 feet 7 inches long, and the other side only 3 feet 6 inches. *One* good climbing rose, in good soil, would cover the whole in three or four years, even supposing the height to be ten or twelve feet; and if you were to prune close, as you propose, you would seldom see a bloom. If the aspect of the sides of the arbour is good, you had better plant strong growing Bourbon roses, and they are all autumn flowerers, or perpetuals. 1, *Madame Lacharme*; the most splendid light autumn rose we have, and nearly white. 2, *Souvenir de Malmaison*; next light shade to No 1, being pale flesh. 3, *Pierre de St. Cyr*; strong, pale rose. 4, *Triomphe de Guillotiere*; a reddish

rose. 5, *La Grenadier*; a crimson. 6, *Gloire de Rosemenes*; semi-double, but splendid, with large trusses of deep scarlet blossom. 7, *Queen of Bourbons*; fawn-coloured. 8, *Souchet*; a dark crimson. 9, *Aridalie*; pure white. Nos. 2, 7, 8, and 9, are comparatively dwarf, and to plant in front of the strong ones, as you propose.

Queen of the Prairies Rose (*Rosa*).—You acted wisely in planting this against a west wall. It requires a wall, or a very good "rose season," to flower well with us. Being one of the very strong growers, and having only had two seasons' good growth with you, you need not wonder that it has not flourished; but to hurry it on, prune it very sparingly, and, on a fine day, fork down among the roots, and cut off two or three of the strongest about a foot from the stem.

Alphabetical Arrangement of Answers (*W. H. Baldwin*).—If we were thus to arrange them, we could not keep open this department until the last hour before we go to press, which we do for the purpose of answering our Correspondents as early as possible. We begin to-day to give an Index, which will, in some degree, meet your wishes.

Forest Tree Pruning (*A Subscriber*).—Your questions open the whole of the chiefly disputed points in wood culture,—a subject to which we shall probably devote a portion of our columns, one of these days. We shall answer your queries briefly. We should *not* cut down young *oaks* when they do not grow straight, but prune them so as to rectify their distortion. We should *prune* forest trees when young, beginning during the earliest stage of their growth. When *a wood is replanted*, it is a matter of indifference whether all the old trees are previously cut down. It should be well trenched and drained before being replanted. The age at which *underwood* should be cut, must depend upon the fertility of your soil. Alder, Lombardy poplar, birch, and hazel, will all grow in low, wet lands; but sallows are usually most profitable in such situations.

Greenhouse over Kitchen (*C. B., Barton*).—Your plants in this "are *now* looking most wretchedly," and no wonder, for it is the worst situation possible for such a structure. With a boarded floor, and a fire in the room beneath all day, whether mild or cold, you can have little control over the temperature, and the air must be most unfavourably dry for your plants. Your only palliatives are to double-pot your plants, stuffing moss between the two pots, and keeping it moist. Keep your greenhouse as cool as you can, and have pans full of water in it.

Platform Planting (*W. S. Brown*).—You will see that our number for December 29th, contains the advice you require about "platform planting," which we had there inadvertently termed "stations." We will avoid this in future, and endeavour to adhere to one term, to prevent misconception. Your soil would appear to be right. Eighteen inches is, however, rather too much for a dwarfing system. You can lay three inches of rubble on the marl bottom, first forming the surface conical. Do not be afraid of the trouble of excavating the soil; if only thrown out and thrown in again, a considerable benefit is derived.

Leaky Greenhouses (*Ibid*).—As to your new *greenhouse*, let it be understood that a score coats of paint will not obviate any misconstruction of principles, or mismanagement in the making. Perhaps your wood was not thoroughly dry; if so, a certain amount of contractions would occur, which would cause the wood and putty to part. If you are sure of the point of ingress, we would advise you to putty up every crevice, when absolutely dry; and then, when the putty is "set," to give another coat of thick paint. Can you not house your lights, and dry them artificially?

Unfruitful Apple-tree (*John Robinson*).—Your apple should have received as much pruning, a few years ago, as to cause it to push forth numerous side branches. As, however, it never matures fruit, cut it down by all means, and plant another. No mode of pruning will make it profitable.

Taylor's Amateur Hive (*Barnaby Screw*).—We must first obtain Mr. Taylor's leave before we can, in any way, impart the late improvements in his hive; he may very probably wish to publish them himself. That they will be published, we feel assured, for Mr. Taylor's object, from the beginning, has been to do good, not to himself, but to others, and that at very considerable trouble and expense, without the slightest remuneration whatever, beyond the pleasure of doing good generally.

Pelargonium Shifting (*Verax*).—You cut down your pelargoniums in September, repotted in smaller pots, and have kept them in a cool greenhouse, and you ask when they should be again shifted? Much depends on the roots. If the pots are well filled with roots now, they ought to be shifted about the middle of January, and their last shift six weeks afterwards. The size of the pots for your plants can only be determined after seeing the plants.

Light-coloured Fuchsias (*Ibid*).—We believe that the best are Purity, One-in-the-Ring, and Dr. Jephson; there are two or three others we have not seen yet; but we shall inquire.

Climber for Greenhouse (*Ibid*).—You wish for one to grow in a pot, and to be fragrant as well as handsome. We know of none better than the Catalonian jasmine. There are abundance of handsome ones, but not sweet ones that would grow, with ordinary skill, in a pot.

Roses from Seed (*J. G.*).—We are very glad to find that you take in The Cottage Gardener. We think we know something of your greenhouse; and we have heard of your great kindness to those around you. We would not, by any means, encourage you to expect success in rearing good roses from seed; you might not obtain one superior rose in ten thousand seedlings; but you may sow the seed now in pots, or on a border in your garden; cover them about an inch deep, and transplant the seedlings, next October, where they are to bloom. Some flower the year following, some in the second, and some may take three years, or more, to prove them. All depends on the sorts.

Orchis Seed (*Allen Dale*).—Your orchis seeds are good; but you will do no good by sowing them. You would find them extremely ticklish to manage, and, after all, you could not compete with nature in the open fields.

Alstrœmeria Roots (*Ibid*).—These, which you have kept in dry sand, are beginning to grow. Pot your Alstrœmeria roots immediately, in light rich compost, and in upright pots, if convenient—any size above six-inch pots will do; or, say one root in a six-inch, three roots in the next, and five in the next size, and so on; put them in your cold pit, and treat them at first like Tropœolum tricolorum, that is, give no water until the leaves are well developed, and allow them abundance of air in mild weather. October and November are the proper times to pot them.

Misseltoe (*Ibid*).—We cannot say if the Misseltoe would grow in your "cold mountainous situation" in Northumberland, but we have seen it grow two hundred miles to the north of you, in the lowlands of Scotland. The farmers in Herefordshire would be very glad to give you all the misseltoe seeds in their beautiful county if you could gather them, for this is their greatest and most troublesome weed. If you send us a stamped envelope, with your address, and write "Misseltoe" inside of it, we shall ask a friend to send you some seeds for trial. One stamp will suffice.

Cock-roaches (*Clayland Roads*).—We are informed, that "The Phosphoric Rat Poison," prepared by Mr. Purser, chemist, New Bridge Street, Blackfriars, destroys these pests effectually. Can any of our correspondents inform us of their success in getting rid of them?

Poultry (*S. W.*).—We never knew an instance of a fowl becoming bald in any particular place. Cockatoos will sometimes become entirely and permanently bald, except on the head, tail, and wings. Does not your Malay cock thrust his neck through some railings round your enclosure, and in this manner rub off the feathers?

Vegetable Refuse (*J. B. C.*)—Weeds, hedge clippings, &c., can be decomposed rapidly by mixing them with quicklime, as you propose; but a much more valuable manure would be made by putting such vegetable refuse into a tank, and pouring over it some of the ammoniacal liquor of the gas works. Dig such manure into your soil, preparing for any kitchen garden crops requiring fertile matter.

Ixia Offsets (*Flora*).—Remove these from the bulbs grown in pots every third year—do so in the month of September.

Cyclamens in Borders (*Ibid*).—In plunging these in a border instead of drying them, the old soil in the pots may remain three or four years; but every season, when the pots are taken up, turn out the balls, and rub off as much of the old soil as will crumble away without injuring the old roots, and then add as much fresh soil as the pot will hold; but never disturb an old root that is alive.

Persian Iris (*Ibid*).—This bulb had better remain in its pot during the season of rest.

Laurel Hedge Moving (*A. M. S.*).—You ask, "Is it possible to move a laurel hedge twelve years old at this season, and yet preserve one out of three of the trees?" No doubt it is possible; but the work must be done carefully and properly. First, form an ample trench, six feet wide, and eighteen inches deep; lay the top or best soil on one side, and the worst on the other side; take up no more plants in one day than you can finish planting before night; throw the best soil in upon the roots, first seeing that all the cavities are filled up, and this is best done by pouring large quantities of water over the roots as the soil is being thrown over them: finish with the bottom soil, and then with some sort of litter for mulch. We presume they are common laurel, the Portugal laurel is more difficult to manage.

Lime and Salt for Potatoes (*Beorolac*).—Mix the lime and salt together a day or two before using them, and then spread them over the surface, and dig them in at the time of planting. When *leaves and dung* are used for making *hotbeds*, they must be mixed together.

Unfruitful Strawberries (*H. O.*).—Your British Queens produce vigorous leaves and runners, but no fruit; this may arise from mismanagement, or from your soil being too wet. Do not cut away *any* of the leaves in autumn, but only the runners, and give a dressing of thoroughly decayed manure in the spring. If this does not make them fertile, trench deeply, and drain well a fresh plot, and plant it with early-rooted runners next August, making your runners root early, for the purpose, by pegging them into the soil. The name of your plant is *Hakea acicularis* (needle-leaved hakea) a native of New South Wales.

St. Thomas (*Rev. J. A. B.*).—We are obliged to our correspondent for the following:—"In number 64 of The Cottage Gardener, you have fallen into a slight error in the explanation of the name of the Apostle Thomas. If you reverse the names, you will be nearer the truth. Didymus διδυμος is the Greek name to explain the Hebrew name Thomas. Thomas, in the Syriac, and Didymus, in the Greek, have the same meaning, viz., *a twin*. It was a common custom of the Jews, when sojourning with other nations, to change their Hebrew name into one having the same signification, in the language of the people with whom they were living."

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WEEKLY CALENDAR.

M D	W D	JANUARY 10—16, 1850.	Weather near London.			Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
10	Th	Black Hellebore flowers. [ing heard.	T. 49—37	S. W.	Rain.	6 a. 8	10 a. 4	5 15	27	7 50	10
11	F	Hilary Term begins. Common Bunt-	T. 40—24	N. W.	Rain.	5	12	6 10	28	8 14	11
12	S	Common Bunting sings. [bge.T.begins.	T. 38—36	S. W.	Rain.	4	13	7 1	29	8 37	12
13	Sun	1 Sun. af. Epiphany. Hilary. Cam-	T. 53—49	S. W.	Rain.	4	15	sets	○	9 0	13
14	M	Oxford T. begins. Long-tailed Pocher	T. 56—32	S. W.	Rain.	3	16	5 a.32	1	9 22	14
15	Tu	Snow Flake goes. [goes.	T. 55—31	S. W.	Fine.	2	18	6 33	2	9 44	15
16	W	Marsh Titmouse sings.	T. 52—42	S.	Rain.	1	19	7 37	3	10 5	16

St. Hilary is one of "the Fathers of the Church"—a name bestowed upon eminent ecclesiastics who wrote upon religious subjects previously to the thirteenth century. He was born at Poictiers, and became bishop of his native city about A.D. 354. He was the most uncompromising champion of the Trinitarian doctrines, and, in defiance of all dangers and sufferings, opposed the Arian heretics. He died in the year 397. His most important works are "Twelve Books concerning the Trinity," and "A Treatise on Synods." He is a very obscure writer. We do not know why the craft of coopers selected him as their patron.

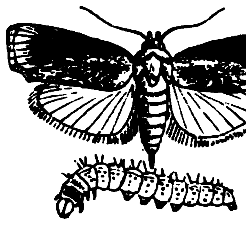
Meteorology of the Week.—The average highest temperature of the above seven days, according to observations made at Chiswick, during the last twenty-three years, is 40.6°; and the average lowest temperature, 30.4°. The greatest height attained by the thermometer, during the same period, was 65° on the 15th in the year 1834. There were, during the same days, 86 fine, and 75 days during which rain fell. On an average of years, *the greatest cold* of the year occurs on or about the 14th of this month.

Natural Phenomena Indicative of Weather. — If *gnats* dance in a dense swarm in the rays of the setting sun, they indicate fine weather; and if the swarm, in a summer's evening, is more widely outspread, it foretells heat. If, instead of gamboling thus in unshaded places, they assemble under trees, and bite more than usual, rain is approaching. It is not generally known that the gnats which attack us in-doors are almost universally females, while those out of doors, and seen sporting in the sunbeams, are almost as exclusively males. *Gossamer* floating abundantly in the air during autumn, and attaching to different objects, is a prognostic of fine weather. *Halo* round the moon indicates, according to the season, that hail, snow, or rain are approaching; the smaller the diameter of the halo, the sooner will the fall occur. When the halo is very red, a wind almost always occurs.

RANGE OF BAROMETER—RAIN IN INCHES.

Jan.		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
10	B.	29.247	30.125	29.861	30.291	22.946	30.477	30.298	30.277	29.133
		29.089	30.027	29.068	30.199	29.764	30.374	30.200	30.219	29.002
	R.	0.40	—	0.06	0.01	0.04	0.01	—	—	0.06
11	B.	29.064	30.007	29.108	30.338	29.665	30.317	30.162	30.461	30.055
		28.864	29.984	28.796	30.324	29.643	30.237	30.070	30.268	29.178
	R.	0.02	0.10	0.16	—	0.77	0.01	0.04	—	0.02
12	B.	29.578	30.050	29.120	30.237	29.776	30.067	30.018	30.433	30.136
		29.364	29.989	28.706	29.992	20.745	29.846	29.881	30.331	29.879
	R.	—	—	0.29	0.76	0.16	—	—	0.01	0.07
13	B.	29.563	29.961	28.649	30.013	29.662	29.954	29.928	30.311	29.736
		29.324	29.878	28.181	29.988	29.555	29.491	29.846	30.293	29.586
	R.	0.29	0.28	0.04	0.03	0.04	—	—	0.08	0.05
14	B.	39.338	29.704	29.030	30.312	29.730	29.524	30.046	30.228	29.859
		29.176	29.558	28.700	30.116	29.606	29.429	29.995	29.963	29.474
	R.	0.80	—	0.16	0.01	0.12	—	—	0.06	0.08
15	B.	29.687	29.953	29.070	30.346	29.778	29.866	30.150	29.986	30.043
		29.559	29.919	28.826	30.317	29.666	29.729	30.008	29.904	29.966
	R.	0.15	0.02	—	—	0.02	—	—	—	—
16	B.	29.631	29.900	29.942	30.292	30.080	29.838	30.083	29.972	29.954
		29.365	29.681	29.310	30.133	29.983	29.722	29.997	29.841	29.720
	R.	0.16	0.02	—	—	—	0.04	—	0.04	0.02

Insects.—A frequent enemy to the bee-keeper is the Wax or Honeycomb moth, the *Galleria cereana* of some entomologists, and the *Tinea mellonella* and *cerella* of others. The expanded fore-wings are from 14 to 18 lines across, grey coloured, with a darker outer margin, preceded by a curved row of small, dark, oblong dots; the inner margin has some short, purple-chesnut streaks. In the female, the wings are more purplish-brown, with less of grey in the middle. In the male, the hind wings are brown beyond the middle; but in the female, they are yellowish-white. Our drawing represents a female, and she is so different in colour from, and so much larger than, the male, that, for a long time, they were considered distinct species. In both the antennæ, legs, body, and abdomen are yellowish-grey, but rather inclining to brown in the female. She lays her eggs at night, about the lower part of the hive, and two broods of the caterpillar are produced, one in spring, and a second early in July. On issuing from the egg, the caterpillars screen themselves from the bees by spinning a web, from which they come forth at night to feed. They attack the lower cells first, and work upwards, spinning webs as they advance. Three hundred caterpillars have been found in one hive, and with the destruction of the cells, and the entanglement of the bees in the webs, a hive is soon weakened and ruined. Another species, *Galleria alvearia*, or Honey moth, is also a pest to bees.



It would not be either unamusing or uninstructive to trace the rise and progress of the taste for Green Peas. They were a luxury unknown to our early Saxon ancestors, for they had no varieties but the common grey pea; and though we have frequent mention of beans being eaten by them, we have never met with any such particular concerning the pea. Soon after the Norman Conquest, however, at monasteries and other establishments where gardening was cherished, we find that this vegetable was among those most desired. Thus, at Barking Nunnery, among other things, there were provided green peas against Midsummer (*Fosbrooke's Brit. Monasticon*, ii. 127). And, in the household book of a nobleman (*Archæologia*, xiii. 373), it is directed:—"If one will have *Pease* soone in the year following, such pease are to be sowen in the wane of the moone, at St. Andrew's tide, before Christmas."

In the 17th century there seems to have been a mania in France for the Skinless pea (*Pois sans parchmeine*). Bonnefonds, in his *Jardinier Français*, published in 1651, describes them as the Dutch pea, or pea without skin, and adds:—"Until very lately they were exceedingly rare." Roquefort says, they were first introduced by M. de Buhl, the French ambassador in Holland, about 1600. The author of a *Life of Colbert*, 1695, says, "It is frightful to see persons sensual enough to purchase green pease at the price of 50 crowns per litron" (little more than an English pint).

Madame de Maintenon, in a letter written on the 10th of May, 1696, says "The subject of peas continues to absorb all others: the anxiety to eat them, the pleasure of having eaten them, and the desire to eat them again, are the three great matters which have been discussed by our princes for four days past. Some ladies, even after having supped at the royal table, and well supped too, returning to their own homes, at the risk of suffering from indigestion, will again eat peas, before going to bed. It is both a fashion and a madness" (*Gard. Chron.*).

The taste was not confined to France; and when, upon the Restoration of Charles II., it became the popular and prudential habit to publish all the disadvantageous anecdotes, true and untrue, that could be collected, concerning the Cromwell dynasty, we read, amongst others, "That Oliver was very fond of oranges to veal, and that the Protectress refused fourpence for one, just at the commencement of the Spanish war! Moreover, that a poor woman, having a very early growth of peas, was persuaded to present some to the Protectress, though offered an angel (10s.) for them by a cook in the Strand. The Protectress only gave her 5s. for them; and, upon the woman murmuring, returned them, with some severe remarks upon the increase of luxury." The taste, however, increased rather than abated, and extended to *late* green peas as strongly as to early; for on the 28th of October, 1769, it is recorded that four guineas were given for as many pottles of them in Covent Garden Market. Our memory fails us if we have not lately heard of as much as ten guineas a quart being paid by the civic authorities for shelled green peas.

Turning from the historical to the practical, we have before us, in the "*Selected Catalogue of Vegetable Seeds,*" by Mr. Hairs, 109, St. Martin's Lane, the following list of 43 peas. Those comments between inverted commas are Mr. Hairs' own.

Beck's Morning Star } are essentially the same; same height as Warwick's, and are the earliest bearers grown.
Warner's Emperor }

Danecroft's Rival; bright glossy green; has no particular merit.

Prince Albert, Early May, or Kent. We believe these to be the same. It is one of the earliest and best of Earlies.

Bishop's Long podded.
"*This is one of the most productive grown, in height*, 2 *feet, produces* 20 *to* 24 *pods per stem, each as large as Scymetars. Sow in rows* 2 *feet apart, and peas in the row* 4 *inches.*"

Shilling's Early Grotto. Pods rough, 5 feet, prolific, good.

Early Warwick. 3 feet high, moderately prolific, and of moderate quality.
" Double Blossom Frame. 3½ feet, prolific, moderate quality.
" Single. Pods, not in pairs as those of the previous one, are less prolific, and not better.

Essex Champion; like the early frame, but greater producer.

Early Charlton or Hotspur. Perhaps the parent of all our varieties; 4 feet, prolific, pods middle sized, indifferent.

Fairbeard's Champion of England.
"*A most delicious-flavoured Var., has all the properties of the Knight's Marrows, grows* 3 *to* 4 *feet high, and an excellent producer, and very early.*"

Fairbeard's Early Blue Surprise.
"*For a general cropper, where sticks are no object, this is highly commendable, being nearly equal in flavour to the Champion, and rather better bearer, grows* 3 *to* 4 *feet.*"

Hair's Dwarf Green Mammoth Knights.
"*A perfectly distinct and most valuable Var., grows but* 2 *feet high, produces pods and peas twice the size of the old Dwarf Green Knights, and is three weeks earlier; every one that has seen this pea pronounces it the best Dwarf in existence.*"

Imperials: Bedman's Early Blue; 2 to 3 feet high; comes into bearing all at once.
" Flack's Victory; an improvement on the above; both 3 ft.
" Dwarf Blue. May be grown without supports; pods large, prolific, 2½ feet.
" Burbidge's Eclipse
"*This pea deserves especial notice; it grows but* 1 *foot high, very early, great cropper, very large pods, and excellent eating.*"

Scymetar. This is a blue pea, middle sized, pods curved, 3 feet, prolific, very good.

Blue Prussian. Pods in pairs, 4 feet, very prolific, excellent.

White Prussian. Pods in pairs, small, very prolific, 3 feet, moderate quality.

Woodford's Green Marrows. 3 feet, flowers in tufts, pods large and full, prolific, called *Nonpareil.*

Ringwood Marrows; 4 ft. high; large; almost transparent; prolific.

Lincoln Green; similar to the above, only green instead of white.

Matchless. 3½ feet, prolific, very good.

Early Green; 4 feet, large, and good.

New Royal Green Marrow; variety of the last, 4 ft., very productive.

Knight's Tall White Marrows. Pods in pairs, large, 7 feet, prolific, excellent.
" Dwarf White Marrows. Raised near Sittingbourne, 1825; peas shrivelled, 3 feet, prolific.
" Tall Green. 6 feet, prolific, small, good.
" Dwarf Green. Pods in pairs, 3 feet, rather prolific, good.
" Black-eyed or Lynn's Marrows.
" Victoria or British Queen Marrows. Large, excellent, 7 ft.
" Tall Green Mammoths. 8 to 9 feet; equal to the Knights.

Old Dwarf Marrows. One of our oldest kinds; 3½ ft., prolific, good.

Royal do. 3 feet, good bearer.

Victoria Tall. 8 feet, very large, prolific, excellent, good for late crop.

Monastery. Tall white marrow, 5 to 6 feet, great bearer, good.

Marquis of Hastings Marrow. Pods in pairs, middle size, 5 feet, very prolific, good.

Sugar Dwarf, or eatable pods. This, and the following, have no tough skin in their pods, and are eaten like French beans; 2 feet, prolific.
" Tall. 5 feet, prolific.
" Tamarind. Pods very large and broad, 3 feet, prolific.

Bishop's Early Dwarfs. 1½ feet high, stands the winter as well as any, small; found by Mr. Bishop, of N. Scone.

Groom's Superb. A blue pea, good for summer crop, 2 feet, bears moderately.
" " Improved.

Old Spanish Dwarfs. Does very well between fruit trees.

Queen of the Dwarfs. 1 foot; has succeeded in very few places.

It often happens that the advice we have to give, in answer to a correspondent's query, is such as may deserve the attention of our readers generally; in which case, as in the following, we shall give our advice editorially. A correspondent (*W. M.*) writes thus:—"I am induced to ask how to treat a *rhododendron bed*, the plants of which (about fifteen in a circular bed) are getting too large for the place, the boughs mingling together, so that I cannot dig, &c., among them. Will they bear cutting quite down, or, only so that a few inches or feet be left, and thus be induced to shoot up again as a laurel, or laurestina bush would do? They have been planted about sixteen years, and have done well in the black soil, brought from my meadow. Would manure improve them; and, if so, what kind, if I cut them down? I have been accustomed to pull off the seed-pods soon after their flowering; this year I have not, and they do not promise to be so full of flowers next year. If they may be cut down, when is the best time?"

We should hesitate for a long time before we would cut down such beautiful rhododendrons as you describe. Why not remove five out of the fifteen, and rearrange the other ten in the present bed? No plants can be more easily removed than rhododendrons, as they carry a large ball of earth about their roots, and may be shifted safely at any time of the year, with equal success. The shrubs thinned out, might be planted separately, in suitable situations, with but little fresh soil. Fresh peat will do better for those in the bed than any manure; and the next best application for them is very rotten cow-dung. However, if you prefer cutting down your beautiful shrubs, April is the best time, and you need only cut down every other plant the first season. You may cut them to any degree, even to the ground, for no plants bear the knife better.

THE FRUIT-GARDEN.

FRUIT-FORCING.—Having, at page 72, assisted in launching the amateur on the somewhat perilous voyage of fruit-forcing, it is next our duty to warn him of the rocks and shallows which will, of necessity, beset his track. We before merely dwelt on a few abstract principles; now it will be best to commence handling the subject in its details,

THE PINE-APPLE.—The month of January is a dormant period with this fruit. Early fruiters cannot be urged forward, as yet with safety, by means of a sudden increase of heat; and successions do not, by any means require it. Light—increasing light—with the natural advances of the seasons, is the signal for an increased temperature. Our London commercial gardeners, however, contrive to "sail against wind and tide" in these respects; for unless they produce ripe fruit very early—that is to say, before Parliament rises—the value of their produce becomes so much depreciated, that it scarcely pays for culture. Hence they grow principally the Queen varieties of the pine-apple; and, by contriving to grow them up to the very showing point in the autumn, the plants start early in spring with even a moderate increase in temperature. With the amateur grower the case is widely different. If he happens to possess surplus fruit, for which there is no immediate demand in his own family, why, of course, they would be turned to account in this way: such, however, would be the exception to the rule.

We have digressed thus much, in order to make one fact plain, which is, that the amateur's course of culture, and that of the commercial gardener, do not lie precisely the same way, although the main principles of culture are strictly the same. There has been so much misconception in this, as in other cases, that we are very anxious clear views should be taken at the outset; and, although it may be that many of our readers are perfectly aware of such facts and features in pine culture, yet we can but crave their patience whilst endeavouring to guide the tyro; it is a duty to endeavour to assist the rising generation in taking their first steps in gardening.

The amateur, then, we will suppose, is not confined to season in his pine affairs. He is, perhaps, not a Parliament man, and therefore we must suppose him thoroughly domesticated, and that, from the gooseberry upwards, he desires to enjoy at all seasons, all that Pomona can afford, backed, as she is in Britain, by an artificial clime. We before said, that in our humble opinion, the Hamiltonian mode of culture is the best for the amateur. We repeat this recommendation. If, however, we happen to ride our hobby too hard, some kind friend must nudge our elbow, and we shall then, doubtless, relax our whipping and spurring, provided sound reasons can be shown. We are quite aware that, in adhering so tenaciously to the Hamiltonian method, we shall lay ourselves open to severe remarks from those who strenuously advocate the Meudon plan, amongst whom is a friend we highly respect, as we may well do. It will be seen that allusion is here made to the gentleman who has assumed the euphonious title of "*Mirabile dictu*," than whom, nobody is more competent to form a good estimate of the comparative value of the various modes in use. The Meudon plan, for aught we know to the contrary, may be the best for tumbling a host of pines into the market at once; it also may be the means of producing larger fruit; the latter point, however, is scarcely secured by the Meudon advocates as yet. And, again, we are quite ready to admit that it looks somewhat more systematic on the face of it. We, however, feel, that if the culture of pines, and other exotic fruits, is to be placed within the reach of thousands (which they will one day), that economy both of labour and material must be the polar star of our calculations. By the Hamiltonian method we do think that a house might be so constructed, that the amateur, or those engaged in professional duties, might at any period be absent for a whole week, and their pines, thus established, unlooked at and unattended, save a servant of some kind to keep the fire in. We really do not want to give the amateur the trouble of removing or shifting, for these things are a serious drawback to their extensive culture. Thousands of amateurs, and keen cultivators too, cannot afford to keep a very expensive staff, yet they are perfectly ready to widen their horticultural views, and to embrace more objects, provided the purse-strings are not drawn too wide. Now, we would so have it, that such gentlemen should be so far relieved from potting, shifting, &c., of pines, as to be able to attend well to the potting of their floral pets; for our worthy and clever coadjutor Mr. Fish, would doubtless be very cross if the shifting of his crack fuchsias, or achimenes, must be compelled to stand over a week or two because our pines must be shifted. If, however, any one is really desirous of having merely the largest pine-apple at the exhibition, he will, perhaps, do as well to adopt the Meudon plan, or some modification of it.

We have thus trespassed much, for once, on the patience of our readers, in order to be well understood; for, in these carping times, it behoves us all "to keep our gunpowder dry."

In a succeeding paper, we will go farther into detail about Hamilton's plan; and in the mean time, we must proceed to other in-door matters.

VINE-FORCING.—It happens with most of our amateur readers, that the roots of the vines they intend forcing are outside the house. This is somewhat unfortunate, and, as a question of principle, should be examined a little closer by those interested; for it so happens that excellent grapes are, in reality, produced under such circumstances, in certain situations. As this will seem perplexing, we must beg to say a few words about it. A few years since we called, in the course of a gardening tour, on a much-esteemed old friend, Mr. Holland, gardener to the Misses Timms, of Taplow Lodge, near Maidenhead. It was either at the end of April or at the beginning of May; and Holland had a house of Black Hamburghs just ripe, certainly as fine as it was possible to imagine. A discussion immediately arose about inside and outside roots, and Holland astonished us by observing, that one half of the house were from an inside border, and the other from an outside one, at the same time challenging as to the difference. And truly no difference could be perceived; all were equally fine. Mr. Holland, however, always covered the border outside with leaves and rakings of the woods in the autumn; we think he said about six inches in depth. Now, we do not suppose, for a moment, that any fermentation heat was imparted to the ground; such was not Mr. Holland's aim. It is obvious, however, that the non-conducting powers of leaves in a fresh state must be much greater than people commonly imagine. Herein is a beauteous illustration of the great wisdom, as well as the apparent simplicity, of the principles in which God has founded the order of things: leaves are not only the chief ornaments of our trees whilst existent, and the great elaborators of all the juices, which are convertible, respectively, into fruits, starch, gums, &c., or timber; but when decaying, are made to subserve the purpose, in some degree, of protecting the roots from sudden extremes of temperature.

We may now offer an opinion as to how it is that outside roots *sometimes* succeed in early forcing. First, then, the vine root, when in action, is more susceptible to injuries than most of our fruit-trees. In addition to its impatience, as a tropical tree, to sudden depressions of temperature, it adds an equal amount of dislike to stagnant moisture. Secondly, we know, by long experience, that not one border in half a dozen (as they have hitherto been constructed) has proved a sufficient guarantee against the above excesses during extreme seasons. Thirdly, that no thorough success can be expected if the young and tender fibres are but once destroyed, or seriously impeded in their operations, any time between the blossoming and the ripening period. Now, if such arguments be admitted—and they are something more than mere suppositions—it will be no marvel that we find such anomalous results arising from grape forcing in various quarters. Indeed, the whole question is simple, and lies in a nut-shell: some writers, however, have managed to invest the subject with a considerable amount of mystery, as, indeed, hath been done in most other gardening matters.

Let us advise, then, those who cannot confide in their border, not to commence forcing too early. But let them instantly set to work and examine the roots carefully, and, if stagnant waters exist, to make as many outlets for its escape as possible, even making holes in various parts of the border, and filling them nearly full of bricks and stones, and having, if possible, an outlet into a drain or escape. Let those who *will* begin forcing cover the border immediately, getting up, if possible, a slight fermentation in the covering; and, as they cannot meddle with the roots, they may throw out an open gutter as close to the extremity of the roots as possible, provided they do not mind appearances. R. ERRINGTON.

THE FLOWER-GARDEN.

HARDY CLIMBERS.—The white vine, or Traveller's joy, called by botanists *Clematis vitalba*, which I instanced last week, in order to point out how plants of that character, which have been neglected for a time, should be dealt with at first, is the British representative of a very useful family of hardy climbers—natives of various countries in the temperate regions of the old and new world—which are not grown nearly to the extent they deserve to be, and no doubt would be, if they were better known to amateurs, or to the great body of the people, amongst whom the different writers in THE COTTAGE GARDENER are all so anxious to infuse a healthy and sound *practical* knowledge of all departments of gardening.

The English name of this family, to which our Traveller's joy belongs, is *The Virgin's Bower;* not, as many suppose, because they are all well adapted to cover arbours, bowers, or summer-houses, in which maidens might sing, or coo, or dress their flower-wreaths, but because the first species of the genus, the Vine-bower clematis, was introduced here from Spain, during the reign of Queen Elizabeth, in 1569; and the name of virgin's bower was given, to convey a complimentary allusion to her Majesty, who, as is well known, liked to be called "the Virgin Queen." *Clematis*, the scientific name of this family, is derived from the Greek word *kleema*, a small branch or tendril of a vine, because most of these plants climb after the manner of a grape-vine. Although the word clematis is as currently in use as virgin's bower, nine persons out of ten in the country unfortunately pronounce it wrong, by putting the accent on the *a*, as in tom*a*too, instead of on the *e* and having the *a* short thus,—cl*é*matis.

Some one or other of the species of clematis, will come in for all the conceivable ways in which strong, hardy climbers can be grown or trained. Almost all of them are quick growers, and would soon cover a large space, and live to a great age, if planted in deep, rich, light soil, on a dry bottom: but a damp clayey bottom does not suit them well. I shall notice, when considering each species, those that will do best in stiff or wet soil. The whole of them grow remarkably well over a chalk bottom, as I can affirm from my own experience here, where we grow a good selection of them, and the first of them begins to flower, some years in February, but never later than March. The name of this is *cirrhoza*, with the accent on the *o*. The meaning of this name is, that the footstalk of the leaf clasps round any thing for support, like the leaves of the *Maurandia*, and the tendrils of a grape-vine; being, if literally translated, tendriled. There are two or three varieties of it, as *calycine* and *polymorphace*, but they have all the same habit; are very nearly evergreens, with small delicate leaves, and therefore, and for their early flowering, are suitable to train up the pillar of a veranda, or somewhere not far from the windows, whence they may be seen in dull weather, and when flowers are scarce. The flowers are produced singly, or one in a place; are large, dullish white, and hang down gracefully with a bell-shaped mouth. The plant is not liable to get naked below, like some of them, and is said by some not to be very hardy; but that is a very great mistake—not an inch of it was hurt here in an open situation, and against an iron arch exposed to all weather, without any covering, during those very hard winters of 1838 and 1841. The only secret in growing it to perfection is, to have it planted on a perfectly dry bottom. It is well suited for sunk areas in large towns, to be planted above the pavement in a raised border, eighteen inches deep, supported with a box-like edging, the wall forming one of the long sides of the box. I never pass through London without "thinking to myself," what a grand place they could make of it after all, if they would but grow hardy climbers against their street doors.

But I must follow out this idea a little further, and show how it could best be accomplished. In country towns and villages, where the houses have no sunk areas, we often see vines, and other plants, doing very well trained against the houses, and their roots covered with the flag stones of the pavement, and the street beyond; so that one wonders how they can exist at all. I have seen the grape-vine produce fine successive good crops of fruit, even while the roots were so situated, that they did not receive a drop of water all that time. Still, I would be very loath to plant climbers in the natural soil, in the sunk areas of town-houses, as we often see them, and doing well too, in some places; but that only happens where the subsoil is of the right sort, and properly drained, and even then a long summer's drought parches up the leaves, in too many instances, and there is little possibility of getting water to their roots. The only serious objection I ever heard to having raised borders for these climbers against a house, is the danger of admitting damp to the walls; because borders of that make, must be constantly kept moist with rain and rich water, during the growing season: but this could be guarded against by a coat of cement over the bricks, and to reach a few inches higher than the soil. I believe, from what I have seen of it, that the Parian cement is is the best for this purpose. If the space is long, say not less than eight or ten feet, the depth of a raised border need not be more than eighteen inches; but for a shorter space, two feet in height would be necessary to give good capacity for the roots—as all such borders are necessarily rather narrow—not more than a foot wide in many places. Builders in general know so little about the requirements of these climbers, that I would never entrust them to make up these borders, in the case of newly-built houses. It is better, and far cheaper in the long run, to get some respectable nurseryman to superintend these things, but with this stipulation, that he will provide the best kinds of climbers for the particular locality and aspect, and to call in occasionally to advise about their treatment for the first twelve months—in short, to be responsible for the whole until the plants are set properly afloat; and thus, his credit being at stake, the plants, some how or other, are sure to get on all the better and faster.

Two of the best borders I ever made for climbers were obliged to be raised in this manner, owing to the previous arrangement of the conservatory, and the following is the way they were made—a single layer of brickbats was put over a stone floor next to the walls, two feet wide; long slabs of slate about half an inch wide were laid down for a border, their corners and middle resting on small pieces of slate, an inch thick; this was to allow an inch opening all along the bottom for drainage; four inches of very roughly-ground bones were laid over the brickbats to facilitate the drainage and feed the roots; then a thin turf with the grass side downwards; and, after that, a good rich compost, pretty rough with bits of turf, charcoal, and broken bones; but this slate edging did not answer so well as a wooden one when a border was raised against an outside wall, because the heat of the sun in summer would warm the slate to such a degree as would be dangerous to young roots growing in contact with it: therefore, I recommend wooden edgings, and, to insure them against speedy decay, I would line their inside, that next the soil, with a row of the thinnest roofing slate set on end and lapping a little over each other at the edges; and the way such edgings are held up is by T-pieces of iron, with a wedge end, which is driven in the wall, and the T-end screwed into the wood. Now, there is no reason why any one, with ordinary capacity, should not grow climbers, that will stand the smoke and dirt, in such borders as these, in any part of a town or village all over the kingdom; and, before I have done with climbers, I shall name some for all kinds of situations and aspects. If I either miss anything, or say what any one cannot make out properly, I shall be obliged to any reader who will write to our Editor for further information, because no part of gardening do I like, or succeed in, better than climbers of all sorts.

The Mountain clematis (*C. montana*), from Nepal, is the next of the family which flowers with us, and as early as May. It is a very strong and fast-growing one, and is highly ornamental when in bloom. If this will bear the smoke of large towns, it will be found one of the very best of them for London houses, as it comes into flower in the middle of the gay season; and, when it blooms, the place would look as if covered with the white *Wood anemone*, for that is just the appearance of the flowers at a short distance. This clematis is easily increased by cuttings or layers.

The Sweet-scented clematis (*C. flammula*), of which there are several varieties, is better known than our own Traveller's joy, which it much resembles. Both of them produce immense quantities of small white flowers in the autumn, and bearded seeds afterwards. For covering a large space in a short time, the Travellers' joy is the best of the two, and has by far the longest beard, or feathery tail, to the seeds; but it will very soon get naked at the bottom, and is not willing to produce suckers so freely as *C. flammula;* therefore, when a climber is wanted to cover the tops of trees, or high up against a house, without reference to the bottom, the Travellers' joy might be carried up a long way with a naked stem; but where it is desirable to have the space covered from the bottom, the *C. flammula* is the best.

At Shrubland Park, we make a fine edging of the *flammula* to large flower beds, for scarlet geraniums, by training it on a flat trellis, eighteen inches from the ground, and about two feet wide, and by stopping the points of the young shoots occasionally through the summer, they flower profusely in the autumn, looking remarkably well against the scarlet mass inside; and after the flowers are over, the white feathery tails of the seeds look almost as rich as the white flowers which fill the air around with their fragrance.

The VIRGINIAN CLEMATIS is not unlike these, and might be used for either of them. Another one, much in the same way, and flowering as late as October, is called *C. grata*, or the grateful-scented clematis, and is from the north of India. *Henderson's clematis* is the best of the blue flowering strong growers, and is a beautiful climber, which ought to be in every garden. It was raised by Mr. Appleby's employers is called after them, and shows what could be done if people of leisure were to amuse themselves with crossing such beautiful and useful plants. There is a smaller blue one, a variety of *C. viticella*, or vine-bower clematis, which does not grow so strong as *C. hendersonii*, and would answer for a limited space. There are purple and reddish flowering varieties of vitisella, and some with double flowers, all more or less slender, and well suited to confined places. They might be cut down to the ground annually, and would all flower after midsummer; or they might be planted to fill up the bottoms of the stronger growing ones. *C. cylindrica*, a blue flowering one, from North America, is also well calculated for filling up the bottom of the strong ones, being quite a slender grower, and coming into bloom after viticella. Another one, with dull yellow small flowers, called *C. orientalis*, is grown here solely on account of its fine foliage, which is glaucous, or greyish green. This one spawns much by suckers. *C. viorna* is another slender one, from North America, with purplish red flowers, well worth growing. This finishes my list of the best sorts, with the exception of those from Japan, which I shall mention soon.

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

Winter Conservatory Plants.—As a continuation of the subject of last week, we shall allude to a few more plants that are very serviceable for embellishing a warm greenhouse during the winter months, requiring, for this purpose, a little of the same system of management as was described as suitable for the *Salvia splendens*, though most of them are rather more tender. The three first, to which we advert, belong to the natural order of *Acanthads*. We shall treat of them so as to suit chiefly those whose means of growing them are not the most convenient.

Justicia speciosa.—This family was named in compliment to a Scotch horticulturist and botanist. The species we have named was introduced from the East Indies more than twenty years ago. There are other species much more beautiful and showy, such as *flavicoma*, yellow and rather dwarf; *carnea*, flesh coloured, with large bunches of flowers; *coccinea*, scarlet; *picta*, painted, and many more worth growing in a stove; but few of them, unless in a high temperature, do much good in winter, and even in a stove the spring and summer, and the beginning of the autumn, are their principal periods for blooming; and hence they become useful, at these times, for adorning a common greenhouse, or conservatory, when geraniums, fuchsias, &c., are upon the wane. On the other hand, the *Speciosa* will keep in flower during three or four of the dullest months of the year, in a temperature from 45° to 50°: and though its individual purple flowers are small, yet as they stand out well from the plant, are produced in great abundance, and the habit of the plant itself is graceful and bushy, when well grown; it is far from being an uninteresting object. When the plants are growing and blooming, they require abundance of water. As soon as the blooming season is over, cut the plants down, and set them where they will not attract notice; receive a little light, and have a temperature a little below 45°. Very little water will be required until they break, which you must by-and-by get them to do, by the time you have a cucumber bed at work, or a small house, in which you are forcing vines, or peaches. Then prune back to the young wood. Shake the soil from the roots, prune them slightly, if necessary, and place in a pot either of the same, or a smaller size, according to the state of the roots, and the means you have of encouraging rapid growth. A little bottom heat would be of great service to them at first; but if that cannot be given, a shady place in the forcing-house will suit them well, taking care, however, to expose them to the light as soon as the roots can supply the perspiring processes, otherwise the plant will get long-legged instead of shrubby. To make the plants large, and yet dwarf, frequent stoppings may be given until June, when they may be set in cold pits, kept rather close, but scarcely shaded from sun; obtain more air where they stand, or, from being set out of doors in August, removed under shelter in September, and never allowed to have a temperature below 45°; for though they may flower well enough, the leaves are easily disfigured. Several shiftings may be given them during the summer, if large plants are the object. The soil should be chiefly light, fibry, loam, with a little peat, and a little dung. If much peat or leaf mould is used, the plants will be apt to get lanky in their growth. Towards autumn, watering with soot-water will encourage a plentiful formation of flower buds; but as far as the plants will endure it, they must then have plenty of sun-light. Cuttings taken off in March, struck, potted, the points stopped, and then treated as older plants, will make nice flowering plants before winter.

Eranthemum pulchellum (from *ear*, spring, and *anthos*, a flower; probably, because many of the family bloom in the earlier months of the year).—Like the last, it belongs to the second class of Linnæus, and is a native of the East Indies. There are two purple ones (*Capense* and *Variabile*) that will do with the usual greenhouse treatment; there are many other species that bloom, in summer and spring, in the stove. The pulchella is not only a beautiful blue, but, with a little coaxing, it may be made not only to ornament the stove six or eight months, but such a greenhouse as we have been supposing, from December to March. The main points of culture are the same as for *Justicia speciosa*, but a few points of difference must be attended to. For instance, cuttings grow more slowly; and, if intended to flower the same season, they must be put in early, in a little bottom-heat, and the plants afterwards never allowed to stand still. When done flowering, the plants will not stand quite such rough treatment; nor should they be cut down quite so much as the Justicia, as, altogether, they grow more slowly, although a season of rest and comparative dryness, before starting them again, seems to suit them. If the plants are not very large, instead of cutting down, it is better to pick out the points of the shoots. I have never tried placing them out of doors in the height of summer. After shaking away the most of the old soil, and potting them afresh, they get a start in a forcing-house; and then, when that became too shady, they could be transferred to a cold pit, kept rather close at first, and more air given afterwards, taking care to have the plants in a secure place, when the cold nights of autumn come. One difference more, the soil should be rather more than half rough, sandy peat, with lumps of charcoal; the rest fibry loam, and dried leaf-mould.

Goldfussia anisophylla, named after Dr. Goldfuss, Professor of Natural History, at Bonne. It is an old favourite in gardens, under the name of *Ruellia anisophylla*, and deservedly so; for, though the light blue flowers are not very gorgeous, they are produced in clusters, all along the shoots; so that numbers of blossoms, thickly studded, command an interest, which the flower, observed individually, would fail to do. Another recommendation is, that it requires excessive bad management to make the plant look ugly; as, almost without any stopping, it takes a beautiful bushy form, growing outwards at the base, in symmetrical proportion, as it increases in height. In flower, or out of flower, it is always, therefore, a pretty object; and is especially suited for amateurs, with limited room, as it never becomes large. Although generally considered a stove plant, it will flourish in a common greenhouse; but then, its flowers would come chiefly in summer. By shortening back the plant in spring, potting, and bringing it forward in a forcing structure, hardening it off in the early part of autumn, and keeping it safe from cold in October, it will flower for the three following months. Cuttings, struck in march, potted, and assisted, by being kept rather close at first, will make neat, small flowering plants before winter. Equal portions of rough peat and loam will suit it well; the loam, if fibry, should preponderate, as the growth will be more stubby in consequence.

Manettia bicolor, named in honour of Xavier Manetti, of Florence; is one of the prettiest of winter climbers, with scarlet, yellow flowers, a native of Rio Janeiro. All the species of the family are beautiful, but they blow principally in summer, while *bicolor* presents us with its pretty, tubular, monopetalous blossoms, chiefly in winter. It will thrive against a pillar, or trained up a stake, or round a trellis in the greenhouse, being fully as hardy as the others, or rather more so; but it looks more luxuriant, and blooms more profusely, when encouraged to grow in a forcing-house in the spring, exposed to light under glass during summer, and let in a temperature from 45° to 50° early in October, when its blossoms will begin to open generally in November, and continue doing so for several months. They should be slightly pruned back when done flowering, before they get a lift with a little heat in the spring; and, during summer, they must, if upon a trellis, be carefully and systematically trained, or they will soon become a mass of confusion. Young cuttings taken off in February and March, and encouraged with a little bottom-heat before struck, and after they are potted off, will make nice plants for the succeeding winter. Equal proportions of turfy peat and loam will suit them well, with the addition of a little silver sand and a few pieces of charcoal. Drainage must be properly secured, or the plants will get sickly. We have all along supposed that this matter, of first importance, would be attended to. R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

SYRINGING.—In our last week's paper, we detailed, at considerable length, the very important operation of watering orchids with the watering-pot. This week we shall write on the no less essential operation of applying water with the syringe. We have incidentally alluded to it in the calendar of monthly routine work; and at page 77, in the present volume, will be found a description of the kind of syringe we consider the best for watering orchids overhead.

Syringing in Winter.—During the dark days of winter, the operation of syringing requires considerable judgment. A large number of orchids will be at rest, requiring but little water, especially those *in pots.* Others, *on logs,* must be syringed on such mornings as the sun is likely to shine. There are, however, a few plants, even in pots, that are much benefitted by the free use of the syringe at all seasons of the year. *Huntleya violacea,* and *H. meleagris,* are two plants much improved by this mode of treatment; and the reason they are so improved is evident enough, when we consider the situation in which they grow naturally. Dr. Schomburgh found them growing on moist rocks, near to a cataract, on a river (Essequibo, we believe) in British Guiana. In such a situation, the spray of the cataract, or the air heavily laden with moisture, continually kept them in a moist state; but, as they grew in the crevices of the rocks, the water continually drained away. In our orchid houses, with the help of the syringe, and a moist air, we imitate these natural conditions sufficiently well. All we have to do is to see that the plants are well drained, and to syringe them in winter once a day, at least, and in summer morning and evening. With this treatment, these two plants will flourish and grow surprisingly.

All the Indian tribes that have no pseudo-bulbs, require more syringing in winter than those that have such reservoirs of vegetable life to sustain them. The generic or family names of such as we mean are—*Aerides, Angræcum, Phalænopsis, Renanthera, Saccolabium, Sarcanthus,* and *Vanda.* All these have a simple stem, clothed with leaves. If exposed to a high dry heat, the leaves and stems will shrivel much more than is beneficial to their health; therefore, whenever a shrivelling is perceived, let them have a gentle syringing, thoroughly wetting the whole plant. This will revive them, and keep them fresh and healthy.

Syringing in Spring and Summer.—It is during these two growing seasons that the syringe is most beneficial, and when they should be deluged almost with showers from the syringe, taking the precaution to allow them to become dry once a day. They are sure to become dry enough during the night. Let the water from the syringe be milk-warm rain-water, and let it fall gently upon the plants; thus imitating natural showers of rain as much as possible. We have found the plants much refreshed in summer by a gentle syringing, when it was actually raining out of doors. In truth if such a thing could be managed, we should be glad to expose them, during the gentle warm showers of summer, to the rain that falls from the clouds. We are quite sure it would do them good.

It is, however, the plants on logs that benefit most by the use of the syringe, both in winter and summer. Of course, they require the most when they are making fresh roots and growths; but even when at rest they must be syringed occasionally, to prevent the roots and pseudo bulbs from shrinking too much. In that state, the finest rosed syringe must be used, to prevent too much water falling on the plants (if any) below.

During the seasons when the syringe is used most freely, should any of the plants have perfected their growth, and consequently require less water, place such in a corner of the house by themselves, and syringe them less frequently. Towards the end of summer, the whole of the plants ought to be perfecting their growths, excepting the Indian ones above mentioned, and the *Huntleyas.* These grow, more or less, all the year, but others must have an entire rest; therefore cease syringing so much as soon as you think there is a fulness and ripeness about the pseudo bulbs, showing that they have made the growth for the year. If you continue syringing as much as ever, there is danger of starting them again into growing prematurely, and then you will have weak, puny shoots, and injure both the flowering and growth for the ensuing season. It is impossible to give any particular time when to cease syringing, or watering at the root with a garden pot: experience and observation must guide the cultivator. In general, we may say the quantity of water, whether applied with the garden pot or syringe, ought to be considerably lessened towards the end of summer—that is, about the end of August. The pseudo bulbs ought to be then fully formed; and, whenever that is the case, they require much less water. By the middle of October, the water ought to be entirely withheld, excepting just enough to prevent the plants from shrivelling.

Dipping in the Cistern.—Plants growing in baskets cannot be effectually watered, either with the garden pot or syringe. The only effectual way of giving the water, is to take them down, and dip them in the cistern, or some other vessel that will allow them to be sunk deep enough. If they are growing freely, they may be left in the water long enough to thoroughly soak the material in which they grow, whether it be peat or sphagnum. Let them stand a few minutes, either in the path or on an empty pot, to drain off the superfluous water, and then hang them up in their places.

Stanhopeas, *Gongoras*, and *Acinetas*, during the growing season, will require this operation once a week. Such as grow in sphagnum—namely, *Aerides*, *Saccolabiums*, and *Vandas*—will not require it so often. Once a fortnight will be sufficient for these, because the moss holds the water longer than the rough peat. These plants also require dipping at intervals, when comparatively at rest. Once a month will be sufficient while they are in this state.

We have, we trust, given our readers sufficient instruction how and when to water orchids. Our next subject will be nearly as important—namely, moistening the air of the orchid house. We find we have inadvertently placed the watering part of this section before the moistening of the air, and we are glad it has happened so, as, at this season of the year, it is of less consequence.

We have a little room left, and shall fill it up with some account of a visit we recently made to Weston Burt, the seat of R. S. Holford, Esq., to whom Mr. Basset is gardener. We were fortunate enough to call there when that rare orchideous plant, *Epidendrum rhizophorum*, had just opened a head of its fine flowers. This beautiful species has flowered in very few collections as yet. We think Mr. Basset has hit upon the right way of cultivating it. It was growing in his coolest house, the heat of which at this time of the year never exceeds 55°. As it belongs to the tall, slender-growing section of *Epidendrums*, this plant was cultivated in a basket, and the shoots twined round several times on the surface. In that way, and with cool treatment, the plant has grown very strongly; and, at last, has produced at least seven heads of its beautiful flowers. The species which it most resembles, is *Epidendrum cinnabarrinum*, but the sepals and petals are of a much brighter scarlet. The lip is of a pale yellow, edged with red, and divided into three lobes, each of which is deeply serrated at the edge. The umbels of flowers consist each of about twenty of these fine flowers. They stand on long footstalks, elevated above the leaves. It is, altogether, a very fine, desirable species; one of the very few out of the large tribes of Epidendrums worth growing. Mr. Basset has under his care a very large collection, which he cultivates with the greatest success. There are no less than four houses devoted to these most interesting plants. Each house has a different temperature, according to the wants of the different tribes. This, we consider, is the grand secret of the health and luxuriance of the collection. We noted the following, as being in flower at the time of our visit, December 21.

Barkeria lindleyana, very rare and beautiful; B. skinneri. Brassia caudata. Dendrobium heterocarpum, scented like violets. Cypripedium insigne; C. venustum. Epidendrum rhizophorum; E. vittellinum. Gongora maculata. Lœlia anceps; L. barkeriana; L. autumnalis, four varieties; L. acuminata; L. furfuracea; Lycaste skinneri, four varieties; L. cruenta; L. macrophylla; Oncidium baueri; O. cavendishii; O. insleayi; O. purpuratum, very rare. Odontoglossum bictonense; O. pulchellum, sweet scented. Stanhopea eburnea. Trichocentron fuscum. Vanda miniata, or, Saccolabium miniatum, new, rare, and pretty.

FLORISTS' FLOWERS.

Since our last week's number, we have had some severe weather; we trust our amateur and cottage friends have effectually protected their favourite flowers. At this time of the year, and during such weather, there are very few operations to be done. The *compost yard* may be looked after, the heaps of different soils turned over, and such as you may be deficient in procured. The places to look for soils of the best quality, pure and sweet, are in the wilds of nature, where the spade and the plough have never been used; these may be truly named *virgin soils*. Upland pastures, that have not been ploughed for time immemorial, will afford the best *loam*. For *peat*, the wide-spreading dry moor, where the heather-bell grows wild, is the best place; if it is naturally mixed with sand, so much the better. For *leaf-mould*, or decayed leaves, the material is to be found wherever trees grow; the method of preparing leaves to form leaf-mould has been described in former numbers. These three materials form the staple of composts for florists' flowers. *Rotten dung* is necessary also for some purposes; this ought to be at least three years old, and frequently turned over to sweeten.

T. APPLEBY.

THE KITCHEN GARDEN.

SOME of the operations recommended in previous calendars, to be carried into practice at this season, owing to the state of the weather, must be left until a more favourable opportunity occurs. A little foresight, however, will always furnish suitable operations for all seasons let the weather be what it may.

LABELS, during severe weather, should be provided, planed to a smooth face, and painted, in readiness for the seed-sowing and planting season; so that, when it arrives, nothing more will be required but a little white lead rubbed on the surface, to be written on. At Bicton, our practice is to place by every kind of seeds and plants committed to the earth at any seasons, a label on which is written its name in full, the date of sowing or planting, and the initials of the party from whom it was obtained, &c. Such particulars are interesting and useful, as they furnish us with the information—whether the seeds are good, how long they are germinating, how long each variety takes to come to perfection—and whether or not true to the variety they were represented to be. Memorandums are made of the foregoing matters, and any other particulars considered worthy of notice, all furnishing the most useful information for succeeding years. A garden, by the assistance of such particulars, may, at all seasons, be fully cropped in succession by the most esteemed kinds of vegetables, &c. The gardener, knowing the exact time it takes to bring to perfection every cultivated variety, provides, beforehand, suitable seeds or plants, for immediate cropping in succession. Our labels are made from rough faggot sticks, from one to three inches in diameter, and, as much as possible, of crooked or elbow-shaped pieces. They are cut from one foot three inches to three feet in length, to suit to either short or tall-growing vegetation. A face is chopped at their summit, and then this face planed smooth; they are next pointed at the base, and then painted, the stake lead-colour, and the face of it white. Hazel, oak, ash, common laurel, or, indeed, any kind of suitable-sized wood that may come to hand, is used for this purpose; but hazel and common laurel we find the best woods to write on with a lead-pencil, as they are close-grained, and rather soft. Stakes or labels, provided this way, will last for several seasons, if, as soon as any crop is off, the labels are collected, and placed by in store. In rough weather, the face is to be again planed and painted; a piece of glass will do very well to clear off smoothly the original writing, if a small carpenter's plane is not at hand. Smaller labels should also be provided, for seed pans and frames. *Stakes*, of all the requisite lengths and sizes, should be provided, trimmed, and pointed, as well as *pea* and *kidney-bean sticks*, *crooks* for pegging down, &c.; otherwise, in the multiplicity of matters, which will require daily and immediate attention, as the season advances, this work will be postponed, until difficult to accomplish.

ROUTINE WORK.—Attend to previous directions as regards *sheltering* and *dusting* about tender things; also *trenching*, *forking*, and *draining*. Provide and well work *fermenting materials*, for making hot-beds. Attend well to the *linings* and *sheltering* of those already made. Sow *cucumbers* in succession, and commence with sowing a good early variety of *melon*. Place some middling-sized early varieties of *potatoes* in heat, to sprout in readiness for turning out under protections on slight bottom-heat. Sow *small sallading* and *radishes* in succession.

BEANS.—Still continue to make good plantations of broad beans, particularly if you have not already done so.

PEAS.—This is a good season to make an extensive sowing of peas, of any of the earlier kinds. Sowings made at this time, will, in general, be found certain to stand the test of all weathers, and come into production nearly, or quite, as early as those that were sown in November. Always ascertain the height of your peas' stems, so as to know how far apart to sow them from row to row. The space should be, at the least, as much as the pea grows in height.

EARLY CARROTS.—Continue to make slight hot-beds for early Horn carrots, *radishes*, &c. If cucumber frames are used for such purposes, let them be well filled up with earth, so as to bring the crop up near to the glass. This is very important in the case of such crops.

SEA-KALE.—Cover up sea-kale, in order to keep up a good succession. Take advantage of a dry day for such work.

POTATOES.—Plant in all favourable weather. We name this in particular, for those who did not plant in November. JAMES BARNES & W.

MISCELLANEOUS INFORMATION.

OUR VILLAGE WALKS.

(No. 14.)

THERE is as much beauty in a bright winter's evening as there is in a bright winter's day. An evening walk, even at Christmas, is worth bearing some amount of cold to enjoy, and to the lover of nature possesses a multiplicity of charms. There is such briskness and clearness in the air, the sky is so darkly blue, the moon so intensely bright, the stars look out one by one so brilliantly, and cluster together at length so thickly, and so gloriously, that we can scarcely turn away our eyes to mark the beauty of all things here below. How delicate is the tracery of the leafless trees against the clear sky! No lace-work can be more beautiful; and the dark, rude outline of the Scotch firs, form a striking contrast to the softer and paler touches of the forest trees. Sometimes a bright star flickers through the boughs of the tall, thoughtful-looking, spruce firs; or the moon, as she quietly sails upwards, throws them into deep shadow, giving a tone and richness, even to a night scene, which is very beautiful, and ought to be sometimes enjoyed, though it does require some resolution to leave the warm room and defy the winter cold. There is so much language, too, in the evening sky, that it is a never-failing, never-wearying book. The sun cannot be gazed on, though his cheering beams are felt in every place; but the moon and stars can be enjoyed as objects of exquisite beauty, as well as of unspeakable wonder and delight. We feel, too, that they are a sort of meeting-point, to which other eyes and hearts are turned, that we may be viewing the same orb on which the eyes of those we love are fixed, in very distant lands; and this seems to bring us in contact—in immediate contact—with those whom we have not seen, and may not see for years. The heart of the mother turns, with deep inexpressible emotion, to that calm soft light that beams on the lonely night-watch of her son among the tossing waves, and almost fancies she can see his image reflected on its lustrous surface. This passing thought beguiles a few moments of the long, long absence, and gives to the imagery of the heart a vividness that seems like truth.

We occasionally see, in bright clear nights, those beautiful appearances, known, to my cottage readers, by the name of northern lights. Their soft rays dart across the clear sky, almost like sheets of pure lightning; and they have been known to produce a sort of clashing noise—faint, yet clearly distinguished. These northern lights bring us at once into close contact with the Polar regions. They are the sunshine of the Esquimaux for many dreary months. There they gleam and light up the wintry skies with bright and various colours; so that, during the long absence of the sun, the work of life is still carried on, amid snows, and ice, and air that pierces the lungs like lancets. When these pale lights are visible to us, let us reflect with interest, that they come to us from those distant ice-bound regions, to which, at this particular time, so many bleeding hearts are turned in agonized suspense; and where, we humbly trust, a band of British heroes still rest on the sure mercies of a God, who is "near to every one of us," and who can feed and sustain His people by the "brook Cherith," in a land of drought and desolation, as easily as when they dwell in the rich land of Gilead. Even the least considerable of the tribes of the earth—the untaught, the dark-minded Esquimaux, whose worldly blessings are so few that they may be almost compared to the beasts of the field, as regards outward things, yet "Our Father which is in heaven," provides for them as tenderly as he provides for those who live under summer skies. He has said, "Am I a God at hand? Am I not a God afar off?" The most wonderful of His works is created for those unprivileged people, and set apart for their especial use. The sun warms and lightens the universe—all people feel and benefit by its influence; but the aurora borealis was given to to the Polar lands alone. No man has yet been permitted to understand the mechanism of that striking, yet mysterious phenomenon. No hand has yet been suffered to raise the veil which screens that work of God from our finite minds. The aurora borealis flashes and glitters and enlightens the dark homes, the frozen plains, the stern snow-clad rocks of those inhospitable shores, with bright, incomprehensible, amazing splendour, defying the enquiring gaze of man, and laughing to scorn all his imaginings, but cheering and blessing those for whose special good they were called into being.

How much, then, does an evening walk instruct us! Are not the heavenly bodies, in themselves, enough to teach us lessons of heavenly wisdom, and cause us to "lay our hand upon our mouth?" The glittering constellations speak to us of God, for He has spoken to us of them, "canst thou bind the sweet influences of Pleiades, or loose the bands of Orion;" has given a yet brighter light to the "glory of the stars;" and has caused them to teach a deep lesson to man of his own nothingness, and God's unapproachable Majesty. How merciful is the Lord our God, "who hath His dwelling on high" and yet vouchsafes to instruct his ignorant rebellious people by every thing, however grand, however simple, that he has placed around them! His hand has made them; His power sustains them; His Spirit invests them with speech and language, if man will but "hear and understand." Let us, then, sometimes enjoy an evening walk, in spite of winter cold. The silence, the stillness, the brilliancy, are tranquillizing and delightful. The roar of the railway-train breaks the silence occasionally; it is the noisy, unmusical work of *man's* hand. The night-wind sighs among the trees, too, at intervals; it is the work of GOD'S hand, and the contrast strikes us powerfully. There is a word for the Christian in every sound, as well as in every sight. "The wind blowing where it listeth," conveys a deep and important lesson to the listening heart. Let us, as we hear the soft rising breeze, raise our hearts to Him who can bestow the influence of the Spirit, that while we have a "name to live" among men, we may not be found "dead" in the sight of God.

HISTORY OF AN APIARY.

WHILST amusing myself this afternoon, by skimming through the two first volumes of your most interesting and useful paper, especially observing the various notices on "Practical Bee-keeping," which dot it at irregular intervals, the thought struck me that, at this dark season, you might find room for the insertion of an amateur apiarian's experience in this year's first part, if drawn up in a sufficiently interesting form. If I may judge of others by myself, a detailed narrative of the fortunes of an apiarian, judiciously written, would be a not unwelcome boon to many—to all *young* apiarians certainly, if they have any *passion* for the practical managemt of bees. If dry manuals of *instruction*, however imperfectly written (as too many are that have fallen under my notice, and betraying, not seldom, the ignorance or presumption of their authors), are eagerly bought up by a bee-loving public, and are allowed to reach a second and a third edition, what favour might not be expected to be shown to a really interesting history of the actual experience of an apiarian of long standing, in which instruction would be agreeably blended with anecdote? We wants *facts*, sir, as Mr. Beaton and yourself have repeated. I throw this out as a hint to such men as Mr. Payne, Mr. Lloyd, Mr. Golding, or Dr. Scudamore, of Canterbury—whose useful little work on "Artificial Swarms" (Longman, 1848, 2nd edition) I would heartily recommend to your readers—who ought to have a mass of interesting information relative to their hopes and fears, successes and disappointments in bee-keeping, enough to fill a folio. I have materials, already in my own hands, to fill a small volume, but I wait for a few years; and then, if my seniors and professed guides in the science do not come forward, perhaps I may take my own hint, and try the temper of the public myself. In the mean time, I will, with your permission, write an occasional sketch of the fortunes of my own apiary. You shall judge if it be worth a place in your paper.

The study of bees has afforded me infinite pleasure for the last six years; although, it is true, I have had my share of disappointment—hive after hive has perished, and experiment after experiment has failed, and left me often no more profitable result than the wisdom of a dear-bought experience. "Try again," however, has been my motto throughout, so I have neither despaired nor been discouraged, but am still as passionately addicted to the study of bees as ever. My former apiary has passed into other hands—a younger sister of mine having succeeded me as its tutelary genius. Under her sole and active superintendence, after a long period of unfruitfulness and ill success, owing to my frequent and long-continued absences from home, it has begun to assume a more promising aspect. This last summer, finding myself located as a curate in the rich county of Herefordshire, not very far from Dr. Bevan's former abode, at a distance of 300 miles from home, I commenced a new apiary. In the cottage which I occupy are two narrow windows, each sufficiently large to accommodate two colonies. These, which have hitherto served no more useful purpose than to assist in swelling Her Majesty's revenue, I have devoted to the purpose of an apiary. In May last, I ordered to be constructed suitable boxes, fitted up with all the newest improvements, according to Mr. Nutt's plan, with this difference, that there are only *two* boxes instead of *three* to each colony; the windows not being wide enough to admit of more. Should a third box be necessary, I have room to *storify*. The passages from the hives communicating with the open air, are tunneled out of the lower frame of the window-sash, and then slope upwards through the floor-board into the centre of the stock-box; this board being made to fit close to the sash. The whole window is shut in by cupboard-like doors, and is under lock and key; and the apiary is open to inspection at all times and seasons from the inside. Many visitors, experienced bee-masters included, have visited my apiary, and pronounced it to be unique and perfect in its way; and well it might be, as no cost has been spared to make it as complete as possible.

Well, sir, into this stock-box was hived, on the 25th of May, a magnificent swarm (which I shall call *a*), which took to its new abode immediately, and worked and bred with such rapidity, that on the 25th of June—a month later, exactly—I was obliged to give them a bell-glass (a small one), and to open the communication with the side box, or they would have thrown off a swarm. This I was assured of at a later period, when, on cutting out some of the combs, I discovered several incipient royal cells, which, it would seem, they had abandoned when more room was given to them. Be this as it may, however, they took immediately to both bell-glass and side box, in which they stored seven pounds of the purest honey, which I took from them on the 25th of July. I then stored them up for the year, having observed an evident relaxation in their labours. From the stock-box I subsequently took eight pounds more of honey, making, in all, fifteen pounds as the harvest of the first year. The box weighed 31 pounds before I spoiled it. This hive is now in very good health.

Encouraged by the success of my first hive, I purchased a second swarm (*b*) from a cottager, and hived it, on the 18th of June, into a rather large straw cottage hive, after Mr. Colton's plan, which was suffered to stand in a friend's garden till September. Although this was a remarkably small swarm, the queen was so good a breeder, that a month later this stock became almost as populous as the other. A gift of five pounds of coarse honey, on their first settlement, made them work with such activity, that the hive weighed upwards of 20 pounds in September. It now stands in one of my narrow windows, in a bedroom about 15 feet from the ground, whither I had it transferred, for convenience of feeding and watching. To this hive I added, in September (before transferring them to my cottage, at which time I gave them half a gallon of prepared food), the population of two other hives, that had been doomed to premature destruction. The advantage of this was manifest in October, when, during the ivy season, they were nearly three times as active as the other hives; but I expect greater things of them in the spring.

Having a spare set of collateral boxes fixed in the same window as a hive, I occupied them on the 10th August with a powerful colony (C), which I had also saved from a sulphurous death, composed of two swarms united. These afforded me very great amusement for a long time after my other bees had ceased from their summer labours. As there was little or nothing to be collected out of doors, I fed them liberally for five weeks on prepared food (a mixture of honey, sugar, beer, wine, and salt, in the proportion of a tea-spoonful of salt, a glass of sherry, half a pound of honey, and three pounds of Barbadoes sugar, to a quart of beer): of this food they consumed about three gallons; three-parts filling the box with comb of the purest white, and storing the liquid besides. At the end of the five weeks, they weighed 25½lbs., which had diminished by only half a pound on the 13th November, two months later, when I weighed them again. They are still very numerous, and in good health.

Besides the above three colonies, I purchased two very rich hives in October, each weighing over 30lbs., with a view to carrying out several interesting experiments in the spring. Of these I have nothing to say at present.

I had purposed to give here an account of the method I have adopted in uniting these swarms, without the assistance of fumigation. It is, I believe, quite a novel plan, and was accidentally discovered by myself; but I must reserve it for some future occasion, as I have already extended my paper to a sufficient length.—A COUNTRY CURATE.

EXTRACTS FROM CORRESPONDENTS.

ANTIRRHINUMS FOR WALL CULTURE.—Many of your readers may not be aware of the advantages which this tribe of flowers offer for the above purpose. I have a stone wall, four feet high, stretching from my parlour window down one side of my garden. It is about one foot thick, and surmounted by a coping of bricks, set edgeways; which, covering only nine inches, leaves a ledge three inches wide near the top. Along this ledge I, some years since, sowed mixed antirrhinum seed, and the result is, a mass of bloom, of all colours, throughout the summer and autumn; indeed, so gay and attractive is the effect, that it excites the admiration of all visitors. They require no soil; no labour beyond cutting them down in the winter, and will freely sow themselves, and produce every year some new and beautiful varieties—many unsightly objects might be thus covered.—S. P., *Rushmere.*

FLOWERS FOR BEDDING.—Your Mr. Beaton does good service, by the description and management he gives us of his border flowers; but there is one flower, which, as a *bedder*, may possibly have escaped his notice—it is the *Cœli rosa*, or Rose of heaven, a species of dwarf Lychnis; it comes early, blooms profusely, continues long, and requires no trouble in the cultivation. My plan is, to take up, during the present month (December), the self-sown seedlings from the summer plants, and set them in knots, three or four together, each knot about 18 inches apart. A bed of any size may be thus formed, and in May, June, and July, it will be one mass of brilliant pink flowers. They will bloom longer than July, if allowed to remain in the ground; but I usually replace them with geraniums, or some other favourite.—(*Ibid.*)

THE HYDRANGEA.—This plant is not so generally cultivated as it might be; it is admirably adapted for lawns, and will amply repay any little extra attention. I have had one about twelve years, and the summer before last it measured 36 feet round, and had on it upwards of 1,100 head of flowers, many of them of immense size. It grew too large for the place in which it stood, and in the autumn of that year I cut the earth round its roots into a ball, and, with the aid of two horses, drew it out, and placed it in another situation. This summer it increased in size, but had not so many blossoms. Next year it bids fair to resume its pristine glory. It is covered with straw during winter —(*Ibid.*)

GREENHOUSE HEATED BY KITCHEN.—I have one of two small rooms over my kitchen, fitted up as a greenhouse. It has a western aspect; size, about twelve feet by ten feet. The warmth of the kitchen underneath is sufficient to keep out slight frost. In case of severe frost, I have steam from the kitchen boiler, conducted by an inch pipe into two tins, each about eighteen inches long, ten inches wide, and a foot deep. Without any trouble or mess, by simply turning a stop-cock, I can get any heat I require. The waste steam, and the condensed steam, each escape by small tubes through the wall. The above hints may be useful to some of your readers. And now I solicit a word of advice. My plants, quite a miscellaneous collection, throve amazingly well during the summer and early autumn months; but now (December) I find several things—geraniums, calceolarias, and cinerarias, for instance, looking most wretchedly.—C. B., *Barton.*

[If a room, or greenhouse, *by the side*, and not *over* the kitchen, can be heated as described by our correspondent, it is a very available mode; but if over a kitchen, the difficulty in the way of keeping the plants duly at rest, &c., is almost insurmountable.—ED. C. G.

OHIO SQUASH.—Its treatment is, in every respect, similar to the vegetable marrow; and is available for cooking, when cut; for hoarding, for winter use, if cut when about half grown; and also for your excellent soup, if cut when ripe. The crop is a more certain one, and more prolific than the vegetable-marrow; and the fruit weighs, when ripe, from seven to eleven pounds. Are you acquainted with the *Mammoth Brocoli*, ordinarily weighing 27lbs., in *one* year's growth? My reason for mentioning *one* year is this, a brocoli is grown at Wilcove, a small village near here, called the *Wilcove Brocoli*, which grows even to 20lbs.; but the plan pursued is as follows:—Those plants which do not head in the spring, are pricked out again the following season, when they grow to the size above-mentioned. I have also a *cucumber*, well adapted for a cottager, and, I believe, a new variety: it generally bears three at a joint, and of a moderate size, in the open ground. Being most anxious to advance the cause of your journal, I should be happy to send you a few of each.—THOS. MOULD, *Devonport.*

TO CORRESPONDENTS.

⁂ We request that no one will write to the departmental writers of The Cottage Gardener. It gives them unjustifiable trouble and expense; and we also request our coadjutors *under no circumstances* to reply to such private communications.

Ivy Berries (*An Old Gardener*).—In an old *Family Herbal*, written by Sir John Hill, expressly for the help of the charitable, where medical aid was distant, is the following passage, under the head of "Ivy":—"The berries are purging; an infusion of them will often work by vomit; but there is no harm in this. They are an excellent remedy for rheumatism, and, it is said, have cured dropsies; but this is, perhaps, going too far." *An infusion* is made by pouring boiling water upon the leaves or berries; *a decoction* is made by boiling them in water. The infusion, or tea, must be made according to taste, and it is better to make it rather weak at first, than too strong. No exact rules can be given; but ivy *berries* may be infused in the same proportions as ground-ivy leaves, or any other herb used for making tea. The ivy *leaves* must be boiled, and the decoction made strong when used as *a wash* for the heads of children, if affected by uncleanliness. Herb teas should be taken warm, and about half a pint is a dose; but habit will soon accustom you to the proper proportion and quantity. We shall be glad to hear that benefit has been derived.—(*From a Correspondent.*)

Pruning Roses (*Rev. E. C. H.*)—Generally, roses may be pruned any time, from the fall of the leaf until the end of February, whenever the weather is open; but in particular cases and situations, it is found more desirable to prune them very early or very late, the reasons for which you will see explained in another column to-day. We do not know "*Jessop's Tureens.*"

Rose Cuttings (*Ibid*).—Those put in lately would have been better without artificial heat, until the end of January; and if "having put out buds," means that some of the buds have grown into leaves or shoots *in ten days*, and this in December, the place was far too hot, and you will probably lose them all. *Tom Tits* as enemies to bees, have been noticed by Mr. Payne.

Plan for Greenhouse (*J. S. L.*).—You want a "drawing from which a plain man may work, accompanied by a pretty intelligible specification." You might as reasonably request our excellent contemporary, *The Builder*, to furnish a list of plants to fill a greenhouse, and their cultivation. Gardeners learn no more of the builders' art and mystery, than enables them to furnish ground-plans, sections, and elevations, otherwise we would cheerfully comply with your request. Water tanks are constructed with bricks or stones, and lined with cement; and the "drip" water is conveyed to it by zinc, lead, or iron pipes, from the gutters.

Diseased Azaleas (*R. Denison*).—Your plants have been greatly injured by thrip, which gives the leaves the rusty appearance. Smoking them with tobacco, and then bathing them frequently with the syringe, with clear soot-water, at a temperature of 120°, will prevent their getting worse, and do something to improve them. The chief remedy for restoring a healthy growth, however, will be, by these means to get rid of the enemy, and then place the plants, when done flowering, in a nice moist heat, using the syringe freely.

In syringing *now*, place the pot on its side, with the head of the plant inclining downwards, so that the water used in syringing does not enter the soil. After allowing the plant to lie for several hours after being syringed with soot-water, syringe it with clear water.

Plants from Seed (*Tyro*).—The request has been attended to, as you would see from an article from Mr. Fish. In addition, we remark, that few half-hardy shrubs can be grown, so as to flower from seeds the same season, except what have been already indicated. The herbaceous plants that would do so are chiefly annuals, if compactness of growth must be the chief consideration. The matter will be considered further.

Camellia Seeds (*J. M.*).—Of the five camellia seeds you were so kind as to send us, *four* were destroyed by the post-office stamp. We will do as you request with the fifth.

Greenhouse (*F. G. W.*).—It is quite possible, with some modification, to convert a "Fortune's pit" into a greenhouse. See what Mr. Beaton said about erecting a greenhouse, at page 119 of our first volume. One 16 feet long and 8 feet wide, might be heated by a chunk-stove. If your peach-tree is not very old, move it before you begin to erect your greenhouse, and replant it elsewhere.

Cochin China Fowls (*E. B.*)—These are as hardy as other fowls. Can any of our readers inform our correspondent where a pair can be purchased?

Books Advertised (*H. Sandford*).—We never take upon ourselves to recommend books merely advertised in our columns. Your other question shall be answered next week.

Raspberries (*Ridgway Harrison*).—Your raspberries were planted too late (March) for them to establish themselves, and produce fresh canes. They will, probably yield very strong ones this year, but they will not bear, unless they do so unnaturally late in the autumn.

Planting Quickset (*Ibid*).—If your soil is light, plant your quickset (hawthorn) fence on the level ground; but if the soil be clayey or wet, throw up a bank. Many persons plant upon the side of the bank as you mention, but we never could understand what advantage could be expected by so doing. We think planting on the top of the bank, taking care there to have the best soil, enables the hawthorns to be planted in the most natural position, with their roots at the just depth, and to be more easily weeded and hoed.

Index and Title-page (*T. Griffin*).—These for the first and second volume, together or separate, for binding in one volume or in two, may be had at our publishers for *one penny*, or *twopence*, respectively. We could not print them on the same sheet with our concluding number of each volume. The *tables of temperature* you refer to, are for the orchid-house, and must be the same for *orchids*, whether in a stove or greenhouse. Such lists as you refer to, you will find in the *Gardeners' Almanack* for 1850.

Loam (*J. B. C.*).—You wish to form this artificially, having clay but no sand, and then ask us whether silt, coal-ashes, or saw-dust will do for mixing with the clay, to effect your purpose. Neither of the two last-mentioned will convert clay into loam, though the ashes would render it much more porous; and we do not know what you mean by *silt*. This want of information prevents our answering your other question.

Larger Periwinkle (*Tooting*).—Move them now as soon as mild weather occurs. Plant them six inches apart, and they will cover your border the first year.

Clericus.—We are much obliged by your friendly advice; but our own opinion, and that entertained by the almost entire of our correspondents, differ totally from yours. You would think differently, we believe, if you could but know the writer.

Heating Peach-house (*Stafford*).—Heating a peach-house in two divisions from one fire-place.—We have little faith in Polmaise, for such an object, more especially as you mean to commence in December. Some succeed, but its greatest advocates have failed. We do not see that you would gain any advantage by the open gutter system, with moveable covers, when a dry heat was required; and, as you say, the expense would be greater than from using common pipes. By using stop-cocks you may heat your two houses, or as many more, from one boiler, provided it is large enough; and, to obtain a moist atmosphere at pleasure, you may have zinc, or galvanized iron, troughs or pans, to fix on the pipes, to be supplied with moisture when necessary. Such troughs are expensive when *cast* upon the pipes.

Turning a Greenhouse into a Forcing-house (*W. Bird*).—You will, no doubt, succeed in obtaining forced grapes, flowers, strawberries, and even cucumbers, from your house; but you must not attempt to cram more into it than you can find light for. As your *vines* are small, it would be advisable not to force them much this season; commence, say in February, and this will give you an opportunity of keeping your plants longer in it for this season; and, thus, you will gain experience gradually. Your acacias, fuchsias, myrtles, and pimelias, should be first removed to the cold pits, whenever you commence to force. The geraniums, cinerarias, &c., will stand a temperature of from 40° to 50°, and that would just do for starting the strawberries, &c. Before you have your *pits* dug out of the ground, for preserving your plants during the winter, think over some articles by Mr. Fish lately. If the wall should be exposed, a layer of straw tied close to it will exclude the frost. The pit, made by inserting a flag-stone, 4 feet by 2½ feet, over the flue, close to the fireplace, and shutting it in with a wall 18 inches high, will do very well for propagating purposes; but we would advise bedding a thickness of bricks on the stone, placing over that a layer of pebbles, and then as much sand as would be necessary for your cutting-pots being plunged in. A tube might be left for pouring down water, so as to command a moist bottom heat Your *cucumbers* had better be grown in pots; they would do little good until your house was raised to a temperature of from 65° to 70°; and, therefore, before that time you would require to raise your plants in a dung-bed, or in the pit over the flue, increasing the heat by covering with a handlight.

Guernsey Lilies (*Eliza*).—Your bulbs have grown too much before they have been sent to you. The great thing with all bulbs is, to allow the roots to grow before the top, which they generally do, when moved and planted early enough and deep enough. You may either keep your plants in the pots, or, what would be as well, turn then out into a warm place, and encourage them during the winter season. We would not, however, be too sanguine in expecting flowers the next year, more especially if the bulbs are small.

Arbutus from Seed (*Ibid*).—This is easily raised from seed, which should be sown as soon as cleaned from the berries, in pots, in peaty soil, protected from sun in summer, and from frost in winter.

Taylor's Amateur Hive (*A recent Subscriber*).—The reply given to "Barnaby Screw" last week, must also serve for you. Mr. Taylor sent Mr. Payne a set of his improved boxes a few weeks ago, and, as soon as they reached Mr. P., he received from him a drawing of a still *further* improvement, and which, he understood, had been submitted to one or two of our most experienced apiarians, who highly approve of it, and it will doubtless be adopted; so that at present the thing can hardly be said to be completed.

Names of Plants (*E. B.*).—Your plant is the Glory Pea, *Clianthus puniceus;* it is of the Diadelphia tetragynia class and order, in the Linnæan system, and of the natural order Leguminosæ. Its flowers are crimson, appearing in May and June. It is an evergreen shrub, native of New Zealand. It does best planted in a conservatory border of peat, loam, and sand. It will grow, however, against a south wall, if protected in winter. The culture of *Æschynanthus maculatus* will be noticed by Mr. Appleby in due time. (*B. B. B.*).—Your plant is *Cuphea platycentra*.

Digging (*Verax*).—We believe that, in freely digging light garden soil, a good workman could dig 300 square yards in twelve hours; but if the soil is stiff or stony, he would not get through more than one-third the quantity in a workmanlike manner.

Pumpkin (*An Old Friend*).—All the varieties are of equal hardihood. The Himalayah is the best we know, but we cannot yet get any seed. The vegetable-marrow is not more tender than others of this genus. The best mode of growing them is to raise seedlings in a gentle heat, ready for ridging out at the beginning of June.

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WEEKLY CALENDAR.

M D	W D	JANUARY 17—23, 1850.	Weather near London.			Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
17	Th	Hedge Accentor sings.	T. 54—27	S. W.	Rain.	8	21 a. 4	8 43	4	10 25	17
18	F	Prisca. Tufted Pocher goes.	T. 50—46	S. W.	Fine.	59 a. 7	22	9 50	5	10 45	18
19	S	Cole Titmouse heard. [goes.	T. 53—42	S. W.	Fine.	58	24	10 59	6	11 3	19
20	Sun	2 S. aft. Epiph. Fabian. Grey Goosander	T. 51—41	S.	Fine.	57	26	morn.	7	11 21	20
21	M	Agnes. Sun's declinat., 19° 55′ s. Grosbeak	T. 50—39	S. W.	Rain.	56	27	0 8	☽	11 38	21
22	Tu	Vincent. Mezereon flowers. [goes.	T. 50—48	S. W.	Fine.	55	29	1 20	9	11 55	22
23	W	Skylark's song heard.	T. 51—45	S. W.	Fine.	54	31	2 35	10	12 10	23

Prisca became a convert to Christianity at an early age, and was martyred, for adhering to her faith while yet a youthful maiden, during the reign of the Emperor Claudius, A.D. 47.

Fabian, the nineteenth Bishop of Rome, according to some, succeeded to the papal chair, A.D. 236; but others place him in an earlier part of the century. He was a strenuous promulgator of the Christian doctrines, and, after retaining the papacy about fifteen years, was put to death for his proselyting zeal, in the persecution which occurred during the reign of the Emperor Decius. So stern and cruel was the persecution, that no one dared to accept the papal crown; and it remained vacant from the death of Fabian—on this day, A.D. 250—till Cornelius accepted the dangerous office, on the 4th of June, 251.

Agnes, like Prisca, was a Roman virgin, martyred for her adherence to the Christian faith; but her death occurred much latter, in the reign of Diocletian, A.D. 306. On the eve of this day, our rural maidens very generally performed, and still perform, various mystic rites, to obtain a revelation of their future husbands from the visions of the night. Another charm, betraying more ignorance, because believed in, whilst the above is more jocular than credited, is the following. In some parts of England, if one of the family is suffering from ague, the eldest female of that family puts her head up the chimney, on St. Agnes' Eve, and says—

Tremble and go!
First day shiver and burn.
Tremble and quake!
Second day shiver and learn.
Tremble and die!
Third day never return.

Vincent was a native of Saragossa, in Spain, and was ordained deacon by Valerius, bishop of that city, but never was enabled to preach, owing to the increase in an impediment to his utterance; yet he was indefatigable in his private ministrations, and soon was singled out for punishment, during the same persecution in which Agnes was put to death. Vincent was burned on this day, A.D. 304. Valerius was banished, and died broken-hearted. We presume that it was considered fortunate if this day was fine, for an old Latin line is preserved, and thus Englished:—

Remember on St. Vincent's day,
Whether the sun his beams display.

Meteorology of the Week.—The average highest and lowest temperature of these seven days, during the last 23 years, is 42·1° and 31·7°. The highest temperature observed during the same years; was 58° on the 23rd, in 1844; and the lowest temperature was 4½° on the night of the 19th, in 1838. There were 93 fine days during the same period, and on 68 days rain fell.

Natural Phenomena Indicative of Weather.—*Headaches*, says Dr. Forster, often foretell a change of weather in persons subject to this complaint. There is also some obscure changes of weather near to the periods of New and Full Moon, which cause an ephemeral headache, beginning usually in the morning, getting worse about two o'clock and subsiding in the evening. It is attended by an irritated stomach, and much resembles the ordinary bilious headaches arising from repletion. Indeed, most periodical disorders seem to be connected with some atmospheric changes; and it is very remarkable, that they should so often have their worst paroxysms, and the crisis of their terms, about the time of the conjunction and opposition of the moon.—(*Dict. Nat. Phen.*)

RANGE OF BAROMETER—RAIN IN INCHES.

Jan.		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
17	B.	29.729	30.207	30.198	30.197	30.095	29.726	30.114	29.630	29.945
		29.605	30.042	30.182	30.180	29.988	29.658	29.090	29.328	29.712
	R.	0.02	—	0.03	—	—	0.01	—	0.23	0.05
18	B.	29.725	30.399	30.454	30.190	29.801	29.734	30.112	29.461	30.006
		29.685	30.353	30.326	30.150	29.560	29.604	30.081	29.306	29.934
	R.	0.24	—	—	—	0.45	0.24	—	—	—
19	B.	29.918	30.452	30.502	30.007	29.568	29.194	30.131	29.643	29.983
		29.778	30.197	30.438	29.932	29.000	28.943	30.068	29.399	29.909
	R.	0.02	—	—	—	0.88	0.44	—	—	—
20	B.	30.182	30.098	30.237	30.017	29.878	29.484	30.037	29.882	30.254
		30.019	30.028	30.086	30.003	29.117	29.309	29.969	29.807	30.009
	R.	—	—	0.04	—	0.03	0.14	—	—	—
21	B.	30.505	30.024	30.030	29.955	30.210	29.313	29.896	30.131	30.238
		30.374	30.009	30.008	29.919	29.998	29.145	29.788	30.073	29.965
	R.	—	—	—	—	—	0.33	0.48	—	0.16
22	B.	30.303	29.881	30.038	29.920	30.199	29.228	29.758	30.081	30.214
		30.157	29.285	30.003	29.865	30.178	29.053	29.736	30.010	29.955
	R.	0.10	—	0.02	—	—	0.02	0.01	—	—
23	B.	30.108	29.584	30.027	30.100	30.135	29.226	29.786	30.283	30.414
		30.004	29.220	29.892	30.026	29.677	29.154	29.628	30.091	30.303
	R.	—	0.12	0.05	—	0.03	0.27	0.03	—	—

Insects.—One of the most curious, and often most destructive to our kitchen-garden crops, of all the subterranean vermin, is the Mole-cricket, known, in different parts of England, by the various names of Earth-crab, Jarr-worm, Churr-worm, and Eve-churr. It is the *Gryllotalpa vulgaris* and *europæa* of some naturalists, and the *Gryllus gryllotalpa* of others. It rarely appears upon the surface of the soil, but makes burrows, like the mole, and destroys all roots which interrupt it in forming these passages. When full-grown, it is nearly two inches long, and four lines broad; colour, dark brown; antennæ, bristle-shaped, and in front of its black eyes; thorax, hairy; wings, broad, large, and triangular when fully opened; abdomen, nine or ten-jointed, furnished at the end with two hairy, awl-shaped filaments. The two fore-feet are broad, like those of the mole, and similarly intended for digging. The female hollows out a place, about half a foot from the surface, in the month of June, and lays her eggs in a heap from two to three hundred. They are shining yellowish-brown, and like grains of millet. The young, which are hatched in July or August, greatly resemble black ants, and feed, like the old ones, on the tender roots of grass, corn, and various culinary vegetables. They betray their presence under the earth, by the withered decay of culinary vegetables in the garden. In October and November they bury themselves deeper in the earth, as a protection from cold, and come again to the surface in the warmer days in March. Their presence is discovered by their throwing up the earth like moles. The surest of remedies is, destroying the brood in June or July. Gardeners know from experience, where the nest of the Mole-cricket is situated; they dig it out with their spades, and destroy hundreds, in the egg state, with little trouble.—*Kollar.*

Resuming our observations from page 163, on the science of gardening, we may next remark, that we have never been able to discover that light has any injurious influence over the germination seeds; and in those experiments apparently proving the contrary, due care was not taken to prevent the seed being exposed to a greater degree of dryness as well as to light. If seed be placed on the surface of a soil, and other seeds just below that surface, and care be taken to keep the former constantly moist, it will germinate just as speedily as the buried seed, and if exposed to the blue rays only of the spectrum, by being kept under a glass of that colour, even more rapidly.

Therefore, the object of sowing the seed below the surface, seems to be for the purpose of keeping it in a state of equable and salutary moisture, as well as to place the radicle in the medium necessary for its growth into a root, immediately it emerges from the skin of the seed. M. Saussure, also, found that when the direct rays of the sun were intercepted, though light was admitted, seeds germinated as fast as when kept in the dark.

Mr. Beaton, in a letter now before us, says, "It has been said, theoretically, that seeds would not germinate freely unless kept in the dark; but, in practice, we find it otherwise. I have tried experiments on all the common seeds of the garden, and found they would germinate in the light—that is, when laid on the surface of the ground. The conditions necessary to bring this about, are heat and moisture. In dry weather I found it expedient to place a hand-glass over seeds under this experiment. There are, besides, some instances where seeds refused to vegetate in the dark. The seeds of *Araucaria imbricata* will not succeed if covered with earth. The small end of the seed is first fixed in pure sand, previously moistened, and the body of the seed is in the full light. So it is also with the seeds of the *Deodar cedar*, thousands of which have been lost when they were first introduced by the seeds being covered with earth when sown. I have also found the seeds of *Pinus Gerardiana*, *P. Webbiana*, &c., and, indeed, all the large seeded pinuses do better by merely fixing the point of the seed in sand. Foreign acorns—particularly the Mexican and North American kinds—succeed better if treated like those of the pinus and araucaria."

All small garden seeds—such as mustard and cress, cucumber, &c., &c.—may be made to germinate in a minute or two, in steam from a tea-kettle. The cotyledons, radicle and plumule, will develope, and instantly perish.

A seed placed in a situation where it is supplied with the desirable degrees of heat, moisture, and air, begins immediately to enlarge in size. This is occasioned by its absorbing moisture, which, passing into the cotyledons, causes their immediate increase. The rapidity of this process is remarkable, and warns the gardener from disturbing the seed after it is once committed to the ground. A few choice peas, from which to raise stock, being sown accidentally in ground devoted to another crop, were removed after twenty-four hours, and were not again committed to the ground for some days. Not one of them produced a fruitful plant, and only two or three vegetated.

This is in no degree surprising, because in the majority of healthy seeds cultivated in our open ground departments, the embryo will be found swollen within three hours; within six hours the radicle will be perceptible; in from one to six days the radicle will have burst the integuments of the seed; within from two to seven days the plantlets will have similarly escaped; and in from four to twenty-four days perfect roots will have been developed, and the leaves appear above the surface.

Moisture, as already stated, is absorbed, and causes the immediate enlargement of the parts of the seed; and this moisture, though it will, and does, penetrate through the surface of the skin, yet is chiefly imbibed through the hilum or scar. It passes to the cotyledons, causing their enlargment, and sets in motion their elaborating powers for the nutriment of the radicle and plantlet; for if they are removed, or if they have been injured by insects, the seed does not germinate; and if they are removed even after the radicle is developed into a root, the plant's vegetation ceases.

No sooner has the radicle escaped from the seed, than it immediately elongates in the direction of the matters most promotive of the future plant's growth. If the seeds of carrots, parsnips, beets, and other tap-rooted plants are sown in a soil with its surface richly manured, and its subsoil deficient in such decomposing organic matters, the plants will have forked and abundant lateral roots, keeping within the fertile surface-soil. On the other hand, if the surface-stratum is only moderately rich—but some manure is trenched in with the bottom spit, so as to be about sixteen inches below the seed—the roots will strike down straight to this superior source of nutriment.

On the other hand, it has been said, that the roots of orchidaceous plants, grown upon wood only partially charred, will be found to have their roots clamber up, and around, and along the wood, but always directing their course most numerously towards the charred portion. This, however, seems to be an error, for Mr. Appleby says that he finds orchids unbenefitted by being grown on charred logs. Again the seeds of the misletoe, placed upon the under surface of a bough, always have their radicles grow upwards to penetrate the bark, and thus secure to themselves the moisture, without which they could not exist. Lastly, if seeds of plants, loving a fertile soil, be sown along the partition, dividing a vessel into two portions, of which one portion is filled with rich earth, and the other with sand, though both portions are equally moist, equally loose, and equally warm, all the radicles will direct their course into the fertile soil.

These facts, with many others, all demonstrating that roots travel in the direction where the most acceptable food is presented, overturn, beyond all controversy, Mr. Knight's hypothesis, that the descent of the root is a consequence of the laws of gravitation; for these laws will not explain why roots grow sideways, and even upwards, if their best source of nourishment is so placed as to require it. Gravitation could only influence them to a downward direction in a fluid medium. To maintain that the laws of gravitation will make the tender radicle of a seed pierce the hardest soil, appears to be a self-evident absurdity.

THE death of the last of the members of the original firm of "Conrad Loddiges and Sons" deserves more than the brief notice, that WILLIAM LODDIGES died at Hackney, on the 28th of December, aged 73. The event deserves a larger notice, because the firm has been associated with the progress of gardening, both in its practice and its literature, for nearly the last eighty years. Conrad Loddiges, the father of the deceased, entered into possession of the Hackney nurseries as long ago as the year 1771, when old John Busch gave them up, in consequence of being appointed gardener to the Empress Catharine of Russia. Both Busch and Loddiges were Germans. Conrad Loddiges lived to the age of 88, not dying until the March of 1826, and was succeeded by his two sons, George and William.

Than the proprietors of the Hackney Botanic Nursery, no men of our time have more promoted the onward progress of horticulture. They diffused a taste for it by the publication of the "Botanical Cabinet," one thousand seven hundred of the figures in which were drawn by Mr. G. Loddiges, who died during 1846, in his 60th year. They laboured assiduously to gratify the taste thus increased, by sending collectors of plants to various parts of the world; and the plants thus discovered, and all others worthy of cultivation, were gathered together and vended to the public, at their Hackney nursery. If cleared off at the retail prices, the stock would realise little short of £200,000. Here is assembled an unrivalled collection of tender exotics, and hardy trees, &c. Thus, of Orchids there are nearly 2,000 species, and of Palms 180; Ericæ nearly 400, and of Roses, including varieties, about 2,000. This garden is so arranged, that every species and its congeners may be easily examined; and the greenhouses, stoves, &c., are most extensive and complete; one—being for the special cultivation of palms—is 80 feet long, 60 feet wide, and 40 feet high.

The memory of the Loddiges will be well retained by that beautiful evergreen, native of the Cape of Good Hope, the *Loddigesia oxalidifolia*.

The business, we believe, will be continued by Mr. Conrad Loddiges, son of the late Mr. George Loddiges.

IF any one, having a taste for the highest departments of horticulture, can spare sixpence a week for its indulgence, let him expend it on *The Gardeners' Magazine of Botany*, the first number of which appeared on the 5th of this month. We say, without any reservation, that it is excellent in its literary merit, excellent in its typography, and excellent in its illustrations. Beautiful as is its coloured plate of *Passiflora Belottii* and *Maurandya Barclayana* (*var. rosea*), yet the woodcuts are most in accordance with our judgment of what the illustrations of such a work should be, to be most useful, as well as ornamental. The *portrait*—for it deserves this name—of *Colocasia odorata*, is just what the cultivator of plants requires; it shows him the habit of the plant, and gives him a model of good growth to imitate, as well as enables him to judge, before purchasing, whether it is suited to his purpose. There are five other woodcuts, and the number is, altogether, the cheapest sixpenny-worth of high art we ever have examined.

THE FRUIT-GARDEN.

FRUIT-FORCING: THE PEACH.—We are now arrived in the middle of January, and although much remains to be said, to the cottager and others, about out-door fruits, yet, as the earlier portion of the new year is always the signal for a renewed campaign in the forcing way, we must beg to say a few words about the peach.

Those peaches intended for early forcing have been at rest for, at least, two months; if three, all the better. By "rest" is meant a period, dated from the casting of the foliage; and, of course, extending up to the period of germination. During the rest period, and, indeed, for several weeks prior to it, all good cultivators encourage an amount of dryness at the root, which at other times would, if not productive of injury, starve the trees. Indeed, from the period of the fruit changing colour, water is gradually withheld; it being understood that too great an amount of succulency in the shoots, or general habit of the tree, tends to imperfect elaborations in its sap,—and very true the impression, doubtless, is. It so happens, at least in our opinion, with the flavour of fruits, as with the scent of flowers; the sweetest mignonette we ever knew, grew out of an old brick wall; whilst its congener, which grew in a deep bed of moist peat-earth, at the foot of the walls, was comparatively scentless; proving, beyond all doubt, that in the one case, elaboration was "*well up to the mark*," as some of our wits say; and, that in the other, it was just the converse.

Such, then, being premised, we will suppose the soil in which the peach-roots are situate, to be rather dry; or, as some gardeners will have it, "husky." Water of some kind must, therefore, be administered, to get the root in action, if possible, before the shoots; or, at least perfectly ready to reciprocate the benefits derived from them.

The first proceeding is to go over the surface, and scrape, sweep, or collect, by any means, all the powdery, loose, and exhausted-looking soil, which, after water has been absent for a long while, is sure to collect. This material would not cause any injury, if suffered to remain; but it may be considered somewhat exhausted as to the peach, which, like most of our stone fruits, prefers a loamy material: that is to say, a soil possessing a slight amount of adhesiveness, provided stagnation of moisture is duly guarded against, by a perfect drainage; and by introducing, when necessary, any imperishable materials, as fine sand, to prevent a too great adhesion through time.

Such being removed, the border must have a good watering; using tepid water of from 70 to 80 degrees. If the border is very dry, clear water may be used as the first application; for, in that event, it will be well to give a second application after two days; and this may be a good liquid-manure. If the border is not *particularly* dry, one moderate watering of liquid-manure may be sufficient.

Borders, in a very dry state, sometimes become rifted or cracked, in which event, most of the water first applied runs through the openings at once into the drains without penetrating the mass of soil. Young beginners, therefore, should be on their guard, and learn to distinguish such things nicely; for much of the success in gardening depends on a correct appreciation of what, at first sight, appear trifles.

As to liquid-manure, every cultivator seems to prefer his own kind; ours, which we have found excellent for general purposes, is composed of urine, guano, and soot water. It is pretty well known that first-rate Peruvian guano is quite as powerful as plants can bear, after the rate of four ounces to a gallon of water. Plants in a growing state, however, are more sensitive to injuries than those in a state of dormancy. Nevertheless, we should not deem it expedient to use it stronger even to the peach border, when coupled with the additional strength of urinary matters from the cowhouse, or elsewhere. We would advise that every gallon of the guano-water, of the above strength, receive one quart of the urine, and some soot-water; the latter may be used pretty strong, as it is not so caustic as the other materials. About a pint of soot to a gallon of water is amply sufficient; and equal parts of this may fairly be blended with the same of the guano mixture. Still, let it be understood, that this is the maximum amount, taking the whole together: at least, we dare not recommend more; it is well to keep within bounds, for, certainly, good fruit may be produced without it. With such a mixture, then, the border may receive a thorough watering, at the temperature before named.

A top-dressing may now be applied immediately, for we hold it good practice, to apply a little fresh, or maiden, soil, annually, in order to coax the fibres to the surface. Nothing is better for this purpose than a compost of half pure maiden loam—not too sandy, and the other half leaf or vegetable soil; the whole well blended. Such may be laid on nearly three inches thick, and on this we recommend a mulching, of a couple more inches of horse droppings, nearly fresh.

The border now is done with for the present, and we must see how forcing must really be commenced. We may suppose that other preliminary matters, such as flue cleaning, white-washing, repairs, painting, and, indeed, anything else connected with the building, or the heating apparatus, have been duly carried out before this period; and that the trees have been pruned, and also dressed with a mixture antagonistic to the scale and the red spider. Such being the case, the forcing period may commence; and, with regard to the peach, a very moderate beginning it must be. Everybody must remember a fine April day, when the poor primroses, previously bound in adamant, through the conjoint tyranny of the ice-king and a drying east wind, all of a sudden find themselves in dalliance with the gentle zephyr; and when the driving sleet is exchanged for the mild and copious dews of a returning spring; every one, we say, has known and appreciated such a state of atmosphere, in which both man and beast exult. Such, then, is a model for the air of a peach-house or vinery, during the earlier stage of forcing; merely premising, that the peach is more impatient of heat in this stage than the vine; indeed, there may be considered nearly ten degrees difference between them at all times, except when the wood is completing its maturity,—when the peach will enjoy as much as the vine. However, to be more definite, we must give some *set rules* for the guidance of beginners; to others, we say, fix your eyes more on principles than rules.

For the first week of closing the house, an average temperature of 50° will be necessary; and, in the next week, or ten days, an advance of five degrees may be permitted: here, however, no further advance may be made, at least, with artificial heat, until the blossom-buds begin to enlarge considerably; and some of the most forward, exhibiting the tint of the blossom about this period, it will be well to commence making some distinction between day and night temperature, a course scarcely necessary before; and, from this period, an advance of two or three degrees may be permitted in the day, especially if sunny, when 60° will be beneficial. Still, however, let that be the maximum, especially if the forcing is very early. When the trees have done blossoming, and the leaf is expanding, a smart increase of heat may be permitted during sunshine, using the advanced temperature chiefly during the afternoon; for a liberal ventilation must be had recourse to in the early part of the day.

As to temperature, henceforward little deviation need occur by means of artificial heat, until the period when stoning commences: this may be known by the young fruit (hitherto swelling) becoming stationary of a sudden. Much caution is necessary during the earlier portion of this period; and fires had better be dispensed with, whenever possible. Through the period of the first swelling, then, we will say a day temperature of 65°, if artificially supplied; shutting up with sun heat in the afternoon to nearly 80°. And at night, during the same period, from 40 to 55 degrees.

We will finish with a few maxims of importance:—

First, keep up a considerable amount of humidity in the atmosphere, from the moment that forcing commences, until the first blossom opens; syringing daily. Fermenting material, inside the house, is of great service in promoting a steady germination.

Secondly, when in blossom, withhold much of the moisture, and give air most liberally; keeping, if requisite, more fire-heat in the day, in order to support the amount of ventilation. At all other periods use the syringe liberally, battering right and left, in order to disturb the eggs of the red spider; for these are almost sure to appear.

Thirdly, let all increase of temperature bear a constant and close relation to the amount of light; and let atmospheric moisture increase with the temperature, excepting while the fruit is ripening.

Fourthly, whenever dark weather occurs, let the forcer betake himself to the lowest temperature prescribed: that is, those who must go by mere rules.

INSECTS.—No success in peach culture can ever be attained, if insects are allowed to keep a footing. The first in the season are the peach aphides; as soon as ONE ONLY is perceived, the house must be fumigated two evenings successively. Indeed, a thorough fumigation should always precede the unfolding of the blossom-bud; and another close on the heels of the germinating period of the leaves. About subsequent culture, waterings, &c, more anon.

R. ERRINGTON.

THE FLOWER-GARDEN.

ROSE-PRUNING.—Before I resume my remarks on hardy climbers, I wish to explain, in a homely way, a question which was lately put forward about pruning roses. It was a very simple question, it is true; but the explanation given in a proper answer to it involves the principle on which the correct pruning of all trees and bushes, whether the pruning be desired to facilitate the production of flowers and fruit, or that of timber. It is true, that there are those who firmly and conscientiously, believe that timber is produced faster and better without any pruning at all; and, very likely, out of a hundred trees planted with a view to profit, a certain number of them might be found to do very well without pruning; but that does not affect the question of pruning either way.

But no matter, what we have now to consider is this—How is it that some writers recommend *roses* to be pruned as early as October, while others prefer November, or any open weather through the winter to the end of February; and some advise the months of March and April? Now all these seasons may, or may not be, the best time to prune roses; for all that depends on the locality, the soil, and kinds of roses to be pruned, and the object the pruner has in view: or, in a few words, the proper season to prune roses depends on local circumstances, without affecting the principles on which all pruning is founded.

Vegetable physiologists—or people who can explain the real nature of plants—have found out, and taught us, that the sap, or juices, of plants—out of which all their parts are formed—is never entirely at rest, not even in the dead of winter; and this is the first grand step to find out the best time to prune any plant on the principle of pruning. Now, mind, we must never lose sight of this grand fact; and the second important fact is this, that no addition can be made to the body or substance of a plant from the fall of the leaf until the plant is again covered with leaves next summer. A fortnight before this last Christmas, the buds of the Honeysuckles, Jessamines, Roses, &c., were as full and as plump, as we have some years noticed them to be in March and April: and this was caused by the rising of the sap more freely than is usual, owing to the fine weather. Now, the fine seasonable "Christmas weather," with sharp frosts, and cold dry winds, put a sudden stop to all this premature swelling of the buds; still the buds are as plump as they were before the frost set in; and, if we examine them, we shall find the fullest ones are at the very point of the shoots, because it is easier for the sap to go straight up to the top than to turn into the side buds. But as soon as the top bud is quite full, and ready to burst—which, however, it cannot do till the proper season—the next bud below it is similarly charged, and so on all the way down, bud by bud, is swollen out with the never-stagnant sap. But very often, and particularly in some roses, the buds at the bottom of the young shoots are seldom influenced by this winter flow of sap before the growing season comes round, and then the top buds burst into leaf, giving a natural opening for the sap to flow upwards, which it will do in the spring, with all speed, without waiting to fill the lower buds at all; and that is just the way, and the reason, why roses, apple-trees, and many other plants, get naked below in the course of time, unless they are pruned; and, as people do not like to see half naked branches on a plant, they have recourse to pruning.

Therefore, the first step in the *art* of pruning is merely to provide that a plant is kept clothed with leaves from top to bottom, by cutting off the upper part of the young branches every winter, to cause the bottom buds on them to start into growth, and so clothe all parts of the plant. But when a plant is to be pruned for some other purpose besides that of furnishing it with a full complement of leaves—say, to cause it to flower very strongly, or to encourage it to carry a heavy crop of fruit, to invigorate a languishing plant, or to check an over-luxuriant one (for pruning is resorted to for all these and other purposes)—I say, when a plant is to be pruned for a particular purpose, it stands to reason that a certain period is better than any other for pruning for that purpose. Now, practice has to find out the best time for this particular pruning, and here theory comes in to explain to practice how it is that such particular season is the best for that kind of work. For, like all of us, practice now-a-days will not rest satisfied with merely doing a thing in the best manner, but must—child-like—inquire the reason why it is the best way.

From all this it must be evident, that when a gardener is asked, what is the best time to prune roses? he cannot possibly give the best answer; he can only guess a proximate answer, or an answer near to the mark. But if he were asked, what is the best time to prune roses which were so strong as to run into each other all over a bed without flowering well? he could say at once, with confidence, why, you must prune them so as to diminish their vigour as far as pruning can do it; and the time for that is as late in the spring as it is safe to trust them with a little growth; or, say when the top shoots have made four or five leaves each. By such very late pruning the accumulation of sap for many months is cast away, and the plants are so far reduced in strength. A friend told me, that he nearly killed the half of a large collection of roses about ten years since, by pruning them two seasons in succession as late as April, after they had broken into leaf; but that some strong Hybrid Chinas and Bourbons were much improved by the late pruning.

I recollect, perfectly well, that it was a favourite theory, at that time, to prune part of the roses as late as possible, in order to put off their flowering to a late period, and so lengthening the blooming season. A very good idea; but those who so pruned indiscriminately, like my friend, will be more cautious for the rest of their lives.

Not to go to such extremes, if we suppose a case where none but the most vigorous kinds of roses are grown, and that the soil is in all respects perfectly suitable to them, there can be no question that March would be a better time to prune them than the previous October, because they would thus annually be robbed, as it were, of a portion of the sap—that portion which accumulated in the upper parts of the shoots since the fall of the leaf—and by that means would be so far checked; although such roses, in the supposed soil, would always keep on the verge of over-luxuriance. But there is no place in five hundred where a case like this could be met with; therefore, there is not a place, out of so many, where it would be advisable, or prudent, to put off the pruning to so late in the spring. But where roses do very well, and are attended to properly, the month of February is a good time to prune all but the very dwarfest sorts. These, and all the weekly growing ones, ought certainly to be pruned close, and as early after the fall of the leaf as possible; for they are not in a condition to afford to lose one drop of the sap that is collected after the fall of the leaf.

Now, when we are asked about the best time to prune roses, we hear of their not doing well, the soil is too thin, or too poor, or they are overshadowed with trees, or large roots from these trees compete with them in the beds or borders, or, in short, they are not thrifty; and, if not so, they ought not to lose any sap by late pruning; but as soon as the office of the leaves is over for one season, the buds, which are to furnish the next season's supply of wood and flowers, ought immediately to be put into the best condition for the end in view, by cutting off those buds above them into which the still circulating sap would first flow; and thus, whatever the accumulation of sap may be in such roses between the fall of the leaf and the bursting of the spring buds, is effectually reserved without any waste; and the same rule holds good with every deciduous plant grown in our climate, whether it be a tree or a bush.

What I have said above about spring pruning was only for the sake of argument, and partly in deference to many respectable men who believe that the spring, and even a certain week or month of it, is really the proper time to perform this work, because they had found, in their own experience, that their roses did very well under that particular mode of pruning. But I hold it, or rather the law which governs the increase and growth of plants commands, that in our climate, at least, every plant which casts its leaves, if it requires pruning at all, ought to be pruned as soon afterwards as possible. It is true that, in the autumn, some of the buds on peach and apricot trees are not readily distinguished as wood buds or flower buds, and therefore not then in a condition to be finally pruned; but that does not affect the law involved in the subject of pruning.

But I have another view of this question, which is quite original, and has never been broached before; but, of course, it is possible that I may be altogether wrong. Many years back I had some experiments, bearing on this very point, in hand for three seasons running. They were intended, however, for the purpose of crossing, and I was then quite satisfied, in my own mind, that cross seedlings, obtained from the same plants, but severely pruned, and otherwise operated upon at very different seasons of the year, were as different in strength and peculiarities of constitution, as if they had been originated from very dissimilar parents. To make my meaning more clear, say, of two plants of the common Moss rose, exactly of the same age and strength, and growing side by side; one of them is pruned down to three or four eyes early in October; the other is allowed to go on till it makes six inches of young wood at the end of next spring, and is then pruned. Dust the flowers of both with the same pollen; but the seedlings will come very different from the two plants; and, although I never crossed a moss rose, I venture to say that seedlings raised in this way would show a very decided difference in the doubleness of their flowers.

We all acknowledge that nature has done nothing in vain; and therefore, that there must be a reason for everything connected with plants. What, therefore, can be the reason why the sap of the deciduous plants does not rest entirely while there are no leaves to turn it into use? If it were not essential to some particular end, we may rest assured it would not be in motion during the winter. Again, we all say, what is true enough, that a good crop of roses, of gooseberries, or of any other flower or fruit, of trees, or perennial plants, is to be ascribed rather to the growth of the plants in the previous season than to that of the current summer. May it not, therefore, be part of the economy of vegetable life that the store of nutriment laid up in the plant during the growing season should be, to a certain degree, diluted with undigested sap during the time the tree is at rest, and thus forming a thorough mixture from which the next growth is made? Whereas, if the sap was entirely at rest during the whole winter, and until the buds were ready to open, the rising sap in the spring must necessarily be more raw, so to speak, and therefore less fit for the production of the finest flowers or fruit, particularly the former. Now, although I have put all this hypothetically, I really believe it to be perfectly correct; and as firmly believe that to leave young shoots unpruned until the spring, after the mixture is properly formed in the upper parts, and then late in the spring to cut those parts off, and compel the bottom eye to burst, by a sudden flow of the raw juices or sap from the roots, is perfectly wrong, and that no attempts to check the growth of a plant should be made by any mode of pruning the branches, but rather by operating on the soil and roots.

J. BEATON.

GREENHOUSE AND WINDOW GARDENING.

CONSERVATORY CLIMBERS.—There is a gracefulness about climbers which no other plants possess, when they are assisted in their growth just so much, and no more, as is necessary to show off to advantage their natural beauties. A starched-up, prim, close-trained appearance, does away with their peculiar interest and attraction; unless, indeed, in the case of those smaller types of the group, in which the flowers are studded so closely and so beautifully, that our attention becomes so absorbed by these, that we forget, for the time, their mode of growth. The manner in which the convolvulus, honeysuckle, clematis, rose, &c., cover, slant from, and festoon, our hedges and woodlands, in spring and summer, might often suggest to us many appropriate ideas as to *fitness*, though none for servile, heedless imitation, as to the methods of cultivating and training.

In the case of those cultivated in pots, it is common to train them to wire trellises of various shapes and patterns, which are so far objectionable, that they always give the plants a stilted appearance, until they become so bushy and strong, as to hang from, and completely conceal, the trellis which supports the main shoots. For many plants, a stout stake, with well ripened shoots of various lengths tied to it, and then, the young shoots allowed to hang, with their flowers in almost a natural manner, would answer the purpose as well. For many purposes, young larch or spruce fir-trees, cut down in spring, when the sap is in motion, peeled, and every twig retained, make as good, and more natural, and more cheap, supporters, for all such climbers, twisters, and creepers, than wire trellising; while you can easily make your plants flat-sided or round, flat broad bonnet-headed, or taperingly conical, at your pleasure.

Position.—The chief place for these plants, in a conservatory, is against pillars, pilasters, and along the main rafters of the building. If to these the main shoots are securely fastened, the flowering shoots of the season may be allowed to hang, wreathe, and festoon, almost as they like. A lofty house, especially, looks very beautiful, when the plants are in flower and thus managed; and the shade of the creepers in summer will be advantageous to the plants below. Whatever else there may be in a house, if this is destitute of creepers, it will always present a starved, bald appearance. Many elements of beauty it may possess, but it will be beauty dissociated, and divided into incongruous parts, rather than blended and concentrated in a harmonious whole. The sensations produced are something analogous to those we feel in looking at a beautiful column, standing upon a suitable plinth, but a column upon which the *capital* has never been placed. What the capital is to the column, the climbers are to an ornamental plant-house.

Planting.—For such conservatory purposes, the plants may be grown in large pots or boxes; and, if well supplied with water and surface dressings, they will answer admirably. But where the house is large, and well-drained borders, inside the house, can be made, it is generally advisable to turn the plants out; though, in the case of some very strong-growing plants, it is advisable merely to break the bottom of the pot, and then plunge it, which helps for a time to restrain its luxuriance. The advantages of planting-out in this manner are several. The plant grows more rapidly at first; and extra luxuriance is easily checked, by disbudding and root-pruning; less attention to watering will be necessary; and, if the plants should become subject to insects, such as the white scale, they may be cut down to within a few feet of the surface; and the strength existing in the roots will soon cause the protrusion of fresh, strong, healthy shoots.

For most plants to be thus turned out, rough, fibry, turfy loam, and peat, in equal proportions, and a little silver sand, and lumps of charcoal in addition, will answer very well; giving most loam to the freely-growing plants. It is advisable not to plant until April, as then active growth will at once commence; but previously to that time, small plants may be obtained and forwarded by every encouragement, giving them repeated shiftings, and never allowing them to be pot-bound.

Pruning.—We have, especially in the Calendar, alluded several times to the pruning and cutting-in of these climbers in winter; not because it is the best time, but because it becomes necessary for the purpose of relieving from shade the plants beneath them, during the dark days. The tenderer kinds should be cut rather sparingly, until the sap becomes active in the early spring. The greater part of the most showy climbers for a conservatory, where the temperature ranges from 45° to 50° in winter (such as we have been alluding to for a fortnight past), as passion-flowers and the Mandevilla, may be pruned just as you would a vine, upon the spur, the short-rod, or the long-rod system, because the flowers are produced from the shoots that spring from the best buds on the wood of last season's growth. Recollect, however, that if you were to cut all away, except a number of long rods, you would run the risk of having flowering shoots produced merely from their points, as the farthest-back buds would not be so inclined to break; while, if you spurred close in, unless the wood was well ripened, you might obtain more wood and less bloom than you calculated upon. You can scarcely cut in too severely; but until you know exactly what your plants can do, take a middle course, and cut in to a one-budded spur, and to short rods respectively, unless when you want to fill a space, when a long one should be retained.

In the case of several *Jasmines*, *Bignonias*, and *Tecomas*, the weaker shoots should be removed, strong rampant ones cut away, and those of medium growth and well-swelled buds retained, for a considerable part of their length, according to their strength; cutting back others, so as to secure young shoots for another year. Spurring such plants to any extent would only give you masses of shoots instead of flowers: just as takes place when a climbing rose is treated like a dwarf one.

In such a conservatory, where the temperature is seldom below 45° in winter, many climbers that are usually considered fit only for a stove will flourish, more especially if the roof should be *hipped* instead of a mere *lean-to;* as then by openings in the back wall, front air, and open doors, at times there may be sufficient ventilation for greenhouse plants below; while the climbers above could regale themselves with a very high temperature. In the central parts of such a house, the following will flourish, but the plants ought to be a good size before being planted, and then should be turned out in the centre of the house; unless where there is a flue in the back wall, when the back border should receive the preference. The first-named are those that require the warmest positions:—

Stephanotis floribunda: white, sweet-scented.
Passiflora Kermesina: crimson.
„ Buonapartea: red, and blue, and white.
„ edulis: white; fruit pleasant.
Bignonia Chirere: reddish-orange.
„ gracilis: yellow.
Tecoma jasminoides: whitish, crimson centre.
Ipomea Learii: large blue flower.
„ rubro-cœrulea: blue, with red streaks; delicately fine.
„ Sellowii: large rose.
Physianthus albans: white bladder-like flower.
Mandevilla suaveolens: white; deliciously fragrant.

Then, such as the following might be planted near the ends and cooler parts of the house:—

Jasminum grandiflorum: white.
„ azoricum: ditto.
Passiflora alato racemosa: rose-coloured.
„ Colvilii: blue and white.
Tacsonia pinnatistipulor: rose.
Brachysema latifolia: scarlet.
Kennedya Marryattæ: red.
„ Comptoniana: blue.
„ monophylla: purple.
„ nigricans: dark purple, almost black, with yellowish-green centre.
„ rubicunda: brownish-red.

Under such treatment, the lower part of the tenderer plants will be apt to become naked, as it is only on the roof, and hanging from it, that in such a house they can be expected to thrive luxuriantly. The naked stem, however, may either be concealed by some of their own branches brought down, by plants being set against them, or by having them surrounded by other creepers, in pots, of a less luxuriant character, such as:—

Manettia bicolor: yellow and red.
„ cordata }
„ glabra } scarlet.
Thunbergia: most of the species and varieties during the summer and autumn.
Torenia Asiatica: blue and purple, &c., &c.

And for the cooler ends of the house, the following might be used for a similar purpose:—

Kennedya longeracemosa: pink.
„ prostrata }
„ coccinea } scarlet.
Sollya heterophylla: blue.

Plumbago capensis: blue. Not a climber, but does well against a pillar.
Tropœolum pentaphyllum: green and red.
„ Lobbianum: orange and red, &c.

The last-named is not valued as it ought to be, as a free winter bloomer. R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

MOISTENING THE AIR OF THE ORCHID HOUSE.—All plants under glass, when growing, thrive much better, and continue more healthy, if the air is kept in a moist state. Hence good gardeners, in this age of improved skill, are constantly, when the objects under their care are progressing in growth, throwing water upon the flues, pipes, walls, and pathways, to create a humid atmosphere, and only withdrawing it when their fruit-bearing plants—such as pines, grapes, peaches, nectarines, &c.—begin to change the colour of their fruits.

If common stove and greenhouse plants, and even fruit-trees, require a moist atmosphere, when in a growing state, how much more must the tribes of plants, about whose culture we are now writing, require it, natives as they are of countries and localities, the atmosphere of which is constantly loaded with watery vapour? We have been assured, by several travellers who have visited the South American continent, that the air where orchids are mostly found, is so full of particles of moisture, as to give the country the appearance of being completely enveloped in mist—so much so, during the early part of the day, as almost to obscure the light of the sun. This mist bathes the plants completely, wetting them as thoroughly as if they had been dipped in water. The sun, however, being nearly vertical, and having great power by the middle of the day, clears away the mist, and dries the leaves of the trees on which the orchids grow. Still, a considerable amount of invisible moisture remains in the shady recesses of the forest, nourishing the orchids, and causing them to grow rapidly, and acquire strength to produce their flowers. This excessive humidity arises, no doubt, from the large surface of the rivers and lakes being acted upon by the fierce rays of a tropical sun. In such a climate, orchids abound. As the traveller advances towards the mountains, where the atmosphere is drier, the orchideæ disappear. These natural phenomena in the atmosphere where these plants exist, show to us the necessity of imitating, as far as we can, such an atmosphere. It is our intention, this week, to show how it may be done, at least sufficiently so to cause the plants to grow well.

At page 64 of this volume, we described the mode of heating, combined with means to supply moisture to the internal air of the house: but though that will afford a considerable amount of moisture, yet in the growing season it will not be sufficient. We also described an additional source of moisture, by having shallow cisterns, used as shelves, filled with water, under the plants. These cistern-shelves will indeed be a great help to the plants, as the air will take up moisture from the water, at a time when the tanks, by not being required to be heated, owing to the natural heat of summer, will not give out any steam or vapour. Still, with all these helps, the hygrometer (an instrument used to denote the quantity of moisture in the air, and with which every orchid-house ought to be furnished,) will show that the air is deficient of that humidity necessary for the strong, free growth of the plants. The operator then will resort to other means to effect this indispensible object. Those ordinary means are such as we have just mentioned—namely, wetting thoroughly, in the spring and summer, the walls, pipes, flues, and paths, with water, and this not only once, but twice, or even thrice, in hot weather, every day. By diligent use of such copious supplies of water, partly with the syringe, and partly with the watering-pot, the air of the house will frequently, after being shut up, be so filled with moisture as to reach the saturation point, and will then deposit the watery particles upon the plants, in the shape of dew. This state of the air is what the plants delight in; and if diligently persevered in—every other point of culture being attended to—every day from February to the end of August, the result will be—healthy, well-grown plants, ready to go to rest full of flower-sap, to form buds that will produce abundance of bloom the following season. This moisture in the air must be continued, to a certain extent, all through the year. The air of the orchid-house ought never to smell, or feel dry. The experienced cultivator, on entering his house, will directly feel whether the air is in a right state or not, without looking at the hygrometer, just as he will feel whether the heat in it is too much or too little, and will immediately use such means as he knows will set all matters right, to give his favourite plants such an atmosphere as will keep them in good health.

In autumn and winter, it will be sufficient to wet the paths, &c., every morning in dull weather; and in the evening, when the sun has been shining all the day.

All this application of water, for the especial purpose of moistening the air, must be understood to be independent of the water applied by the syringe to water the blocks and the baskets, though, of course, that will be an additional help, materially assisting for the same purpose. These two points of culture may very properly be combined; that is, the syringing the blocks, and wetting the other parts of the houses, and then the air will be better moistened.

There is yet another way of giving vapour to the air, that we have not alluded to—namely, with steam; and we can assure our readers it is a most effectual one. The reason why we have not described it before is, because it requires a considerable outlay, and more room than our amateur friends, perhaps, would like to incur. But as it is quite possible there may be some growers to whom these difficulties would not apply, we shall now give its history and application.

About seven or eight years ago, we had the charge of the fine collection of Orchidaceæ belonging to T. Brocklehurst, Esq., at the Fence, near Macclesfield. That gentleman spared no expense in any thing likely to bring his collection to the highest point of perfection. Among other things, we had a small boiler set up for the express purpose of generating steam to moisten the air of the houses, and it answered admirably. The boiler was of the commonest description, of what is denominated the saddle-shape (a form that we consider an excellent one). From this boiler, which was placed in a shed behind the houses, an iron main-pipe was carried through the wall, round the front and back of the three houses. At intervals of 6 or 7 feet, holes were bored into the main-pipe; from these holes the steam rushed up among the plants too strongly, though at 3 feet distance. To correct this, we had small pipes, about 6 inches high, screwed into the holes. At the top of these pipes others, about 6 inches long, were fastened horizontally; the two then had the appearance of the letter **I**. The steam then rushed out of the two ends of this horizontal pipe, and spread over the floor in the first instance, and afterwards rose up into the air of the house, softened so much as not to injure the tenderest leaf, or most delicate flower. This steam was kept up till the house was completely filled—so much so, that the plants were so enveloped in it as to be invisible at a few feet distance from them. The plants, when the steam was stopped and dissipated, were bathed in dew in every part, under the leaves as well as on the surface. The effect of this application was soon visible. The plants grew with surprising rapidity, sending out roots in every direction. They also put on that dark green, healthy appearance, that showed they had got into an atmosphere they loved. The sickly ones recovered their health, and the healthy ones flourished with renewed vigour. The steam was applied morning and evening, during the spring and summer months, until the plants had finished their growth. After that it was only applied occasionally, according to the state of the weather. If sunshine prevailed during the day, drying the air of the houses, the steam was got up and let on the next morning, not for too long a time, but just sufficient only to damp the air. In dull weather, the steam was dispensed with altogether.

The only difficulty in the use of steam was, that in summer it made the houses very hot whilst it was applied. That objection, however, was of comparatively little value, as at that time the plants were growing freely, and required a larger amount of heat than at any other time of the year. In spring, when the mornings were cooler than ordinary, the steam was applied, and heated the house sufficiently, without the hot-water pipes being heated at all. This was a considerable saving of fuel, besides the advantage of so effectually moistening the air.

Now, the question naturally arises—"Is it worth while to adopt the steam method of giving atmospheric moisture?" In places where large collections are grown, we are inclined to say, "Yes;" but in places where one house only, and that a small one, is devoted to the culture of orchids, we say, "No;" unless the two methods could be combined: that is the hot-water boiler could be so contrived as to be a generator of steam, to be got up to that point when required. We have no doubt some ingenious maker of boilers could accomplish this, if he was required to do so.

We have now, we judge, said all that need be said on the subject of moistening the internal air of the orchid-house. We request our readers to study the subject carefully, and to make use of such means as are in their power to accomplish this important point of culture. They will soon find the advantage of doing so.

FLORISTS' FLOWERS.

There is yet but little to do in actual operations amongst florists' flowers. The principal thing to attend to is, to preserve them from frost and damp; also, to keep a good look out for enemies, in the shape of *slugs* and *green fly*. Against the former, there is no remedy like picking them up and destroying them. The latter may easily be destroyed by tobacco smoke, applied moderately and often.

Hollyhocks.—These splendid autumnal flowers may yet be planted, and will grow freely. We prefer planting now, to driving off that operation till spring. The planting can be done when the weather is mild. During our visit to Scotland, we observed these fine flowers used to cover naked walls, and very beautiful they looked. We particularly noticed those in the grounds of Mr. R. Macintosh and Mr. R. Grieves, both in the neighbourhood of Edinburgh. Several cottages also were agreeably ornamented with hollyhocks against the walls. Mr. Grieves of Libberton, near Edinburgh, kindly furnished us with the following descriptive list. When we saw them, they were just opening their first blooms; and certainly they appeared to be first-rate kinds:—

Mrs. Dundas: creamy white; centre, full; guard petals, round and flat.
Mr. Dundas: lilac rose; centre, full; guard petal, round and flat.
William: lilac crimson; centre, intensely full—unique.
Susanna: deep cream—a perfect model.
Gustavus: deep purple; centre, full; guard petal, round and flat.
Acme: purple; centre, firm and compact.
Model of Perfection: scarlet—a model every way.
Rosamond: rose; centre, large and full.
Duchess of Gordon: a large expansive flower.
Ne plus Ultra: French white; centre, good.
Climax: peach blossom; centre, well up.
Defiance: blackish crimson; centre, intensely full.
Paragon: peach blossom; ditto ditto.
Sabrina: French white; large and full.
Standard of Perfection: dark red.
Negro Boy: very deep red—very full.
Eliza: pure white; large and compact.
Delight: light flesh colour.
General Bem: dark rose; one of the first out.
Kossuth: light red; ditto.
Sir William Rae: fine pink; centre, full and compact.
Snow Drop: pure white.
Diana: cream white.
Golden Prince: the best yellow out—large and full.

T. Appleby.

THE KITCHEN-GARDEN.

Cauliflower Plants.—Care must be taken with those in pots that they do not get pot-bound, or stunted for the want of water, or of being shifted. When it is necessary to supply water, give a good soaking, in a methodical manner, with tepid water, to which we add a small portion of liquid manure, and increase its strength as the plants become stronger. A good, healthy preparation should be provided for turning them out of the pots, if the weather is open and favourable, about the first week in February. Our system is to choose a good piece of ground in the valley, between two sloping banks, generally where ridge cucumbers, vegetable marrow, and the tetragonian spinach, &c., have been cultivated; because, a good provision, in the way of manure and pulverised soil, having been provided for such crops, and their season being over early in the autumn, it affords a good opportunity to provide, in due time, an excellent preparation for turning out the potted cauliflowers under hand-glasses.

Our sloping banks for this purpose are cast up tolerably high, so as to afford sheltering-protection from the searching winds of the early spring; they are about 12 feet wide at the base, and about 4 feet higher at the centre than the valley between them, which is left about 5 or 6 feet wide, in order to have sufficient room for a row of handlights, a row of lettuce plants on each side, and an alley, about one foot wide, covered with cinder-ashes, or shingle, to walk on, far giving air, watering, &c. The banks which are cast, or trenched up into ridges, are often forked over, particularly on frosty mornings, and are planted in succession on both sides with cauliflowers; and when the cauliflower-crop is taken off, the same ground is planted with celery, besides which, a good preparation is to a considerable extent, ready provided for the celery in the valleys between, as well as the banks of earth on each side, for blanching it on the six feet bedding system, as previously directed. It is also laying an excellent foundation for the onion crop the succeeding year; and for winter coleworts, or early spring cabbage, to succeed the onions.

The outsides of the celery banks should be slightly protected for the next five or six weeks, and a fine, open, drying day chosen for the last earth being applied to the latest crop. Keep a watchful eye over the *early brocoli* crops. If the weather continues severe, a handful of pea-haulm, fern, or dry mulch of some kind, placed over the heart of each plant, forms a very good protection.

SEA-KALE succession, of a small portion at a time, or only to the extent which is absolutely necessary to keep the requisite supply, should be covered with fermenting materials, and carefully attended to, in order to observe that a kindly and moderate warmth about it is maintained. The roots which have been taken up and forced, as previously recommended, may be beneficially assisted by the application of tepid liquid manure, and be made to produce several good cuttings. *Forced rhubarb* may be assisted in the same way, and succession of roots, placed in heat, will keep up any desired supply.

ROUTINE WORK.—Fermenting materials should now, by all possible speed, be collected together, and well wrought, so as to be in readiness for as many various purposes as at the coming season may be required for framing operations. *Cucumber-beds*, in frames or pits, not heated by tanks or pipes, will require strict attention, by the application of good, well-mixed hot materials, as additions to the linings; and one uniform heat must be well maintained. Slight hotbeds should be made, in succession, for *asparagus, potatoes, radishes*, &c.; and *small salad* should be sown in succession, in pans, and placed in a little warmth of some kind. *Kidney beans* may now be sown on well-prepared hot-beds; and famous early crops may thus be procured. *Broad beans*, likewise, may still be planted as extensively as required, according to the directions already given; and *peas*, also, of the early kinds, may be sown to any extent. Those that are already up, keep well mulched up with dry earth, &c.; and, if annoyed with mice, adopt some of the methods we have already described for destroying them. The sparrow, too, is often found to be a very troublesome pest to the young peas; and, as soon as the pea is to be seen peeping through the earth, this little bird will make sad destruction among them. At the same time, no bird can be more easily frightened: the only thing is, to keep a watchful eye upon the peas, and as soon as they are breaking through the earth, strain a string of worsted, of any colour, from end to end of each row, keeping the thus strained worsted from four to six inches above the peas in the row, which will effectually prevent the sparrows touching them. *Spinach* and *lettuces* are often also attacked by the same bird in small gardens in early spring; but the above will always form an excellent protection.

Plant *spearmint* either on small hotbeds made for the purpose, or in pots, or large pans, according to the supply required. If a large supply of green mint is required, then make a slight hotbed for the purpose; but, if a small supply only be needed, a few plants may be potted, and placed either in the cucumber-bed or other heated structures. JAMES BARNES & W.

MISCELLANEOUS INFORMATION.

OUR VILLAGE WALKS.

AT this season we turn, with pleasure, to every evergreen tree; and among those that we possess, the spruce fir has striking beauty. We are apt to disregard it during the period when other trees are in leaf—it is generally smothered up with the foliage of those that are grouped round it, and most frequently its lower boughs are destroyed, from various causes; so that it is overlooked, or passed by with little notice. But, in its unmutilated richness, it is a very beautiful and graceful tree, and invaluable during winter. It is a livelier and more sprightly looking variety of the fir tribe than the Scotch fir, and is very ornamental in places where it either stands alone, or at such a distance from others as to preserve its lower branches in full vigour. It then spreads gracefully, and is green and healthy, and full of beauty. The cones are very ornamental in shape, and, in some of the varieties, they stand upright on the boughs, which has a very peculiar effect when the tree bears them thickly. These cones make excellent fuel; and I have been told, that when they are only used to feed the fire for smoking bacon, it receives improved flavour. I have never tasted any that has been smoked in this manner; but I remember a gentleman who always used them, as he considered them far superior to wood for that purpose. It may be interesting to those who can procure a sufficient quantity of fir cones, to try this experiment; and it would be a means of employing little children safely, and usefully, to pick them up.

The spruce fir, in its rich greenness and quiet dignity, forcibly reminds me always of the beautiful figure, used by the prophet Hosea, to describe the perfections of the glorious Head of the church—"I am like a green fir tree; from me is thy fruit found." So many species of fir were known in the Holy Land, that writers have ever differed as to which was referred to in this striking passage; but I am contented with gazing on the tall, sweeping elegance of the spruce, and fancying it the dim, imperfect picture of Him who is "altogether lovely." Even in some of our secluded country walks, we meet with a group of these beautiful trees—and though they are then generally stripped of their lower boughs, and are, consequently, less beautiful, yet they still stand clothed in rich foliage, amid the dry and leafless trees of winter, reminding us of one who is "the same yesterday, to-day, and for ever," and who will shine with perfect splendour when the destruction of all things comes. It tells us, too, that when all earthly pleasures fail—when the things that may have made us happy, fade and die around us—we have still "a Saviour, and a great one," whose glory and whose perfections fade not, and in whom alone we can find a fulness of joy, that no man can intermeddle with. From Him, also, is our "fruit found;" so that our weakness and unworthiness need not be mentioned, when we cast ourselves upon Him who is "our righteousness." Let us always consider this when we see the green waving boughs of the beautiful spruce, and its tapering stem, pointing to heaven. Let us not be content to gaze on the objects round us simply as objects, but as subjects for thought and profit. The lingering leaves that still cling to the desolate boughs, flitter round us as the sudden gust shakes them from their slender hold, and remind us that "we all do fade as a leaf." They warn us, too, that all the bright things that decorate our earthly existence, are as fleeting and perishing, as dry and worthless as the leaves, when their vitality is withdrawn from them. It is not the bright sun, nor the sweet fresh air, nor the soft summer showers that give them life; neither can these preserve them from decay. The living principle is deeply seated, beyond human ken; the obedient sap obeys the impulse of the Hand Divine, and decks the tree with all its glory. When circulation ceases, when the sap no longer stimulates and feeds the leaf, it droops and dies, in spite of all the rains and sunbeams that can cheer and nourish it. Does not the thoughtful Christian understand this? Has it not a word of instruction for him, as he lingers amid the still beautiful woods, and tracks the winding path through beds of fallen leaves? Do our blessings spring from the things of this world? Does our happiness depend on outward sources? Is there not a hidden life that gives our pleasures all their sweetness, and, when they are snatched from us, gives us a sure hope of richer and more glorious ones, in a world that knows no decay? Unless our peace springs from a deeper source than worldly blessings, it will surely wither and die.

Even now there is a relic of the past summer on some of the hedges. The downy clusters of the wild clematis still clothe the leafless sprays in some places, and remind us of the beautiful flowers that wreathed and waved around them in wild luxuriance, a few months since. It is pleasing to see even the remnants of the warmth and sweetness of summer; particularly when the depth of the winter is over, and we feel that we are again hastening towards the resplendent sun, and shall soon be looking for springing plants, and budding flowers, among the fields and hedges. The bramble, in some places, is never wholly out of leaf. Its strong leaves remain throughout the winter, although less green and bright; and, see it where we may, there is a grace in the form and drooping attitude of this beautiful wild plant, that never fails to please the eye. There is a species of bramble, said to be found only in the Holy Land, and therefore distinguished by the name of "holy bramble;" but our own wild plant grows there too, in some places, though not so generally as it does here. It is scarcely possible to look at the bramble, without thinking of those troubled times, when Jotham stood forth on "the top of Mount Gerizim," and uttered a parable against the sin and folly of the men of Shechem. Let us, as we stand admiring its rich waving masses beneath the trees, or in the deep silence of the beautiful glades and openings, hear a voice as from the top of Gerizim. Let us remember the end of Abimelech; the end of all who do evil. God will as surely "render the wickedness" of all who sin against his laws, as he did that of the slayers of his brethren. Let us remember, too, the deep lesson taught in the parable, for we are proud in our own weakness, and ever but too ready to exalt ourselves. A simple hedge-plant may do us good, if we will but listen to its voice, and hear all it can say. We need not go far for instruction; lessons of wisdom are sown for us by the way-side—they are scattered thickly around us, but we do not attend to them. We admire the beauty of the object, but its words are not heard. Do we not reject the word of God Himself? Do we not suffer "the wicked one" to catch away "that which is sown in our hearts?" Are we not ever, in spiritual things, hearers "by the way-side?"

LIST OF PANSIES.

WE have received the following correct list of pansies from Mr. Grieves, an eminent grower, near Edinburgh (*see Advertisement*). We insert them for the benefit of our readers who may wish to add to their stock this spring:—

France Cycole (Grieves).—Flower, large; form, first-rate; petals, dark puce, of velvety texture; lower petals, broadly belted with exactly the same tint; centre, pale primrose; blotch, dark puce; eye, gold colour, forming altogether a superb variety.

Alexander (Grieves).—Centre, pure white; upper and lower petals, broadly belted with blue, form and substance, extra good.

Augustus (D. & Co.).—Ultra-marine; belt and upper petals, rich puce, and dark blotch in the centre.

Beauty of Arnotdale (Russell).—Yellow and blue, fine blotch, but thin.

Byron (D. & Co.).—Gold and purple; fine form and substance; blotch, dense.

Caroline (Turner).—White and blueish purple; good shape; an excellent flower.

Cossack (Thomson).—Dark marroon self; an extra good flower.

Criterion (D. & Co.).—Bright chrome, with rich bronze-crimson belt and upper petals; smooth edge; extra form and substance; colours, fast.

Duke of Norfolk (Bell).—Yellow and dark marroon, purple; beautiful blotch.

Jessie Wilson (Downie).—Rich, dark purple; edge, smooth; fine form and texture.

Lucy Neal (Scotcher).—Dark purple self; good shape, and flat, but thin.

Magnificent (Nelson).—Fine shaded ruby puce; the three under petals delicately laced with white; of great substance; an extra fine flower.

Marchioness of Ailsa (——).—Straw and fine purple; fine blotch; form, size, and substance, extra; a fine flower.

Marchioness (——).—Orange self; fine blotch; size, large; of good substance.

Marquis of Tweedale (Downie).—Yellow centre; belt and upper petals, dark marroon; large, and of fine substance.

Miss Wedderburn (Currie).—White with dark blue belt and upper petals; fine shape and substance.

Orion (D. & Co.).—Yellow, and rich bronze crimson belt and upper petals; very flat, smooth, and round.

Orestes (Gosset).—Gold, and rich bronze crimson; a good flower.

MY GARDEN NOTES.

As Mr. Beaton did me the honour, some time since, to intimate that my communications to THE COTTAGE GARDENER would be acceptable, I take the opportunity afforded by these long winter evenings to hand you an epitome of many little discoveries I have made during my initiatory experiments and inquiries into the secrets of horticulture.

GREEN-FLY.—First, I will just talk a little of that pest of pests—the "Fly." Everybody knows—both amateur and professional—what difficulty is experienced in keeping this intolerable invader under; especially with regard to those delightful tribes of plants, the Calceolaria and Cineraria, which greet us with their early blossoms, when all else is dreary and desolate; and, on that account alone, are doubly prized. I last year did my utmost, and put my whole scanty stock of knowledge to the test, in my endeavours to repel the enemy; but all in vain. I could not afford time to syringe the plants with tobacco-water, and again with clear water; and smoking seemed useless—the "fly" prevailed—and a woeful spectacle were my plants. I thought this was a disgrace, but on entering the "houses" of my friends, I found they were as bad off as myself. There was something satisfactory in not being alone; but I determined to have no more to do with them, unless I could grow something respectable without much trouble (or, I should say time, as trouble to an enthusiast is a relish). However, when autumn arrived, I thought I would make another trial; so at the proper season took up some nice little suckers, and housed them. In process of time, there was their old foe! I thought it a hopeless case, but all at once an idea struck me, which I immediately put in practice. I could not but conceive, if the *essence* of tobacco would extirpate them, surely the odour from the "weed" itself would prove efficacious; I consequently chopped some very fine, and spread over the surface of the mould in the pots, and I have the satisfaction of observing, that the effluvium arising from it, while in the damp state (which, of course, is always the case), has fully realised my expectation: the plants are holding up their heads, showing trusses of bloom, and not an insect to be seen on them.

I should tell you, that I have very few plants of the kind mentioned, owing to my failure last year; but if the plan answers with half-a-dozen, it will with a hundred. It has the advantage of saving much trouble, and is by no means unsightly.

Soot.—The next piece of advice I have to offer to your cottage readers and amateurs, is "save your soot;" do not allow a particle of it to be taken from your premises. If it is so valuable to the farmer, that he will give 6*d.* or 8*d.* for what is called a *bushel*, it is surely valuable to every cultivator of even a rod of ground. In proof of the high estimation in which it is held in this district, I have a case in point. I have never allowed the sweepers to take it from my premises, but pay them extra for cleansing the chimnies. This week, a fresh hand came to perform the operation of sweeping my parlour chimney, which, when done, I tendered the sum I had always paid—one shilling; our black prince shook his head, saying, "that wouldn't do; if he left the sut, he must have 1*s.* 6*d.*" I asked the reason he demanded more, to which he replied, "the sut's worth 2*s.* to me." The chimney being very foul there was what I would call a bushel. This will prove very acceptable; and I will now explain my mode of using it. We all know what a terror the sparrows, the slugs, the snails, and the mice are in early spring, just as our peas, &c., are peering above ground, when the earth offers scarcely a blade or berry for the sustenance of any animal that either crawls or flies. All manner of contrivances are adopted to save the rising crops from their ravages, which, in nine cases out of ten, may be avoided by the simple application of soot.

When I sow my first crops of peas, I cover the rows, about three inches in width, and half an inch deep, with soot, and they are safe; for under that, beast, bird, insect, or worm durst not enter.

My friend who saw the application, observed, "That will not do—it will burn the young plant immediately it rises above the soil." But I urged, that the frequent rains in spring would destroy its caustic property before the young shoot reached it; meantime, its dark colour would, by its attraction of the heat of the sun, promote the growth of the plant, its essence would be washed down gradually to the young roots, and when the plant is at maturity, nothing would be so beneficial as to go along each side of the rows, turning in that which has not been hoed up as deep as the spade will reach.

I felt the advantage of this treatment in the splendid crops of peas I gathered last year, which were most abundant, and of very superior quality. I have known its application to prove exceedingly advantageous at the time of sowing any kind of seed in early spring, but it must, on no account, be used when the tender plant is just above ground, or the whole may be destroyed; nor can I advise its employment in summer, as I have not yet tried it.

This paper having extended beyond what I intended, I must postpone further remarks for the present. W. Savage, *Friary Cottage, Winchester.*

TO CORRESPONDENTS.

⁂ We request that no one will write to the departmental writers of The Cottage Gardener. It gives them unjustifiable trouble and expense; and we also request our coadjutors *under no circumstances* to reply to such private communications.

Register of Rain (*R. Denison*).—Thanks for this. It will be of use both to ourselves and a friend who is preparing a work on meteorological statistics. It was quite impossible to answer your question earlier. We are obliged to be nearly a week in advance in printing.

Colours Harmonising (*P. L. S.*).—Red, yellow, and blue are contrasts. The unpleasantness of their association may be softened by putting other colours between them. The three can never be said to be harmonious colours, however mixed together. In all specimens of good colouring, the key colour should predominate.

Cochin China Fowls (*D. T—k*, and *A Poultry Fancier*).—Our correspondents wish to know whether these are purchaseable any where.

Thomson's Elements of Meteorology (*H. N.*).—Blackwood & Sons, Paternoster Row. 18s.

Verbena and Heliotrope Cuttings (*A. M.*)—We presume your plants are thin, long-legged, and straggling, from want of plenty of air, and neglect of judicious stopping—that is, nipping out the points of the shoots, just to make them bushy. You might do so now; or, if you want greatly to increase your stock, you might get a mild hot-bed in the course of a month, and take off all the points of the shoots as cuttings, when they would strike root readily, and, in all probability, make better plants than their parents.

Heating a Small Greenhouse (*J. E. B.*).—The leaves of your Cinerarias, &c., are injured, owing to the gases which escaped from the stoves you used in the interior of the house, which is apt to be the case with all of them, whatever the construction—vegetation, in this respect, being even more sensitive than men. The evil would be greatly increased by the stoves getting heated red, as yours did. There is a want of a remedy for such cases as yours, merely because great tradesmen hardly think it worth their while to trouble themselves about devising the cheapest and best mode of heating a greenhouse, ten feet by ten, with a span-roof. Hot water would give you most satisfaction, and entail upon you least trouble. One of Eley and Foulchers 14-inch saddle boilers would cost two pounds. If you are near a foundry, you might get one cast with two flanges to fix a flow and return-pipe upon, for less than the half of the money, and, although you had to cover the top with a lid, it would answer well enough. Then 20 feet of 4-inch pipe would cost a pound more. If the boiler was so elevated that the pipes came straight from it, then you would incur no additional price for elbows there, and would merely require once to connect the flow and return-pipe together. The bricks required would depend upon circumstances. Such a house could be effectually, and more economically, heated by a small flue running round the house, or even beneath the floor of the house; but in the latter case the fire-place must be sunk deep, to give a good draught. A very clever gardener has heated several small houses by this latter means. His flues are extremely small—merely the depth of a brick set upon its edge, and only a little wider; a thinnish tile covers it; and then over that, overlapping the joints, is placed another tile, which forms part of the flooring, so that you see no means of heating whatever. An open space is left on each side of the flue, below the flooring-tiles, to allow the heat to spread. We saw them on a very cold day, and the houses were quite comfortable. The secret of success, in such narrow flues, is giving a good rise from the fire-place. Such a house might also be heated from a fire-place in the dwelling-house if contiguous; but the botheration counterbalances the saving. Any one may fix the water-pipes, and any bricklayer can make the flue.

Cats (*Ibid*).—We quite feel for you, and the more so that we can offer you no effectual assistance. We know they are sad gardeners, but they are not an unmixed evil. Where they congregate, mice and rats, &c., will keep at a respectful distance. A well-trained dog would keep them away; but then he would disturb you and your neighbours, and might prove a bad gardener too at times. Cats are most easily trapped, and easily poisoned; but then these are no *humane* methods for preventing their intrusion; and, if at all indulged in, would bring a host of old women about your ears.

Aspect for an Apricot (*G. B. R., S. bank*).—It is hard to choose. We fear that in the first case you propose, there would be a serious compromise, provided plants, and perhaps vines, were in the house. The chances in the second and third cases given, are nearly balanced. We should prefer the last, provided the wall, generally, is warmed by the fire behind. Apricots delight in a warm wall.

Moving a Vine (*Ibid*).—There is no use in shortening the long roots of your *Vines;* we would rather lengthen them. The bruised ends should be pruned.

Protection for Wall-trees (*S. O. L.*).—We have covered with canvas for twenty years, and find it everything we desire; for we rarely miss a crop of fruit. Staples are driven in beneath the coping, 8 feet apart. At every staple, in the beginning of March, we affix a pole half a yard from the wall, at bottom, and fastened beneath the coping at top. The canvas has a rope let in for selvage, and ropes from that are passed through the staples at top, and hence it is readily pulled up and down, within a foot of the ground. Augur-holes are bored through the poles, and a large peg, projecting nearly a foot, stuck in each hole. The canvas, when off, is lowered on to these pegs, to prevent it touching the ground, and thence rotting; and the rope readily reinstates the canvas. Many other plans there are, but we have seen no better. Of course, pullies would be more complete than staples. Our canvas costs about fivepence a square yard; and has hitherto been purchased of "Hulme, Paradise-green, Knutsford." The Fring Park scheme we are ignorant of.

Chicory (*J. N. Bott*).—Can any one inform our correspondent whether chicory roots are sold in the London market in a green or dry state, and who are the purchasers.

London: Printed by Harry Wooldridge, 147, Strand, in the Parish of Saint Mary-le-Strand; and Winchester, High-street, in the Parish of St. Mary Kalendar; and Published by William Somerville Orr, at the Office, 147, Strand, in the Parish of Saint Mary-le-Strand, London.—January 17th, 1850.

WEEKLY CALENDAR.

M D	W D	JANUARY 24—30, 1850.	Weather near London in 1849.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
24	Th	Great Titmouse heard.	T. 50°—47°. S.W. Fine.	52 a. 7	33 a. 4	3 50	11	12 25	24
25	F	Conversion of St. Paul. Hepatica flowers.	T. 51°—44°. S.W. Rain.	51	34	5 1	12	12 39	25
26	S	Missel-thrush heard.	T. 49°—26°. W. Rain.	50	36	6 8	13	12 52	26
27	Sun	Septuagesima Sun. House-flies in windows.	T. 45°—34°. S. Rain.	49	38	7 4	14	13 4	27
28	M	Daisy flowers.	T. 45°—33°. W. Rain.	47	40	rises	☺	13 16	28
29	T	Honey Bee comes abroad. [flowers.	T. 42°—24°. N. Rain.	46	41	6 a 57	16	13 27	29
30	W	King Chas. I. martyred 1649. Double daisy	T. 48°—29°. S. Rain.	44	43	8 15	17	13 36	30

Conversion of St. Paul.—This commemoration of the conversion of the greatest enemy of our faith, to be one who "laboured more abundantly" than any of the other apostles to promote its diffusion "among all nations," was first instituted A.D. 813, but not adopted into the ritual of our church until 1662. For many centuries we find it recorded in all writers upon the weather, that from the meteorological phenomena of this day might be deduced the fortunes of the entire year. Lloyd, in his "Diall of Dales," says—"From this day the husbandmen prognosticate the whole year: if it be windy, there will be wars; and if it be cloudy, it doth foreshow the plague that year." In "The Shepherd's Almanack" for 1676, we find—"If the sun shines on St. Paul's day, it betokens a good year; if it rain or snow, indifferent; if misty, great dearth; and if it thunder, great winds, and death of peeple, that year." It is not needful now to add Gay's warning—

"Let no such vulgar tales debase thy mind—
Nor Paul nor Swithin rules the clouds and wind."

Meteorology of the Week.—The highest average temperature during the last 23 years, of the above seven days, is 44.2°; and the average lowest 32.7°. Of the 161 days, 96 were fine, and on 65 rain occurred. The highest point reached by the thermometer was 56° on the 28th in 1843; and the lowest, on the 27th in 1827, was 17.

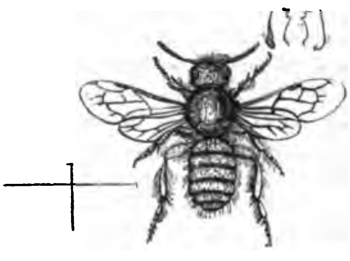
Natural Phenomena Indicative of Weather.—*Pigs* running about, or hastening home squeaking, and throwing up their heads with a particular jerk, indicate the approach of windy weather. Hence the common saying, that "pigs can see the wind." *Nightmare*, though usually caused by an overloaded stomach, yet often occurs when the weather changes during the night. The same observation applies to the distressing dreams which some persons have in particular kinds of weather. An east wind beginning to blow during the night will often cause them, and sometimes the same are produced by the atmospheric changes preceding a heavy fall of snow.

RANGE OF BAROMETER—RAIN IN INCHES.

Jan.		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
24	B.	30.161 29.796	29.853 29.634	29.869 29.837	30.242 30.184	29.937 29.586	29.644 29.330	29.416 29.245	30.358 30.338	30.374 30.200
	R.	0.02	0.12	0.02	—	—	0.24	0.22	—	—
25	B.	30.336 30.195	29.745 29.327	30.059 29.999	30.262 30.188	30.038 29.680	29.339 29.143	29.321 29.303	30.370 30.242	30.099 29.907
	R.	0.01	0.10	—	0.01	0.07	0.59	0.02	—	0.04
26	B.	30.000 29.988	29.518 29.175	30.038 30.010	30.282 30.225	29.707 29.571	29.242 29.168	29.449 29.259	30.072 30.038	29.931 29.804
	R.	—	0.14	—	0.02	0.11	0.08	0.02	—	0.01
27	B.	30.225 30.015	29.794 29.638	29.959 29.901	30.249 30.134	29.289 29.111	29.624 29.359	29.385 29.258	30.134 29.953	29.948 29.385
	R.	—	—	—	0.02	0.04	0.02	0.21	—	0.43
28	B.	30.300 30.250	29.907 29.831	29.907 29.772	29.900 29.883	29.034 28.932	29.584 29.394	29.275 28.990	29.857 29.828	29.379 29.321
	R.	—	—	0.02	—	0.11	0.06	0.02	—	0.02
29	B.	30.208 30.176	30.075 29.921	29.911 29.826	29.997 29.745	29.293 29.257	29.780 29.344	29.367 29.305	29.914 29.820	30.079 29.571
	R.	0.02	0.03	—	—	—	0.23	—	0.06	0.01
30	B.	30.251 30.204	30.219 29.906	29.905 29.724	29.843 29.634	29.212 29.171	29.919 29.863	29.538 29.474	29.667 29.276	30.138 29.900
	R.	0.08	—	—	0.03	—	—	—	6.02	0.04

Insects.—The Carpenter, or Leaf-cutter bees are among the insects marked by habits which approach closely to those of superior intellect. Kirby and Spence describe them as "hangers of tapestry," and the species we have selected—*Megachile centuncularis* — well illustrates their mode of furnishing their solitary cell, entitling them to be so described. The insect is of the size shown by the cross lines by the side of our drawing. It is of a pitchy hue, its legs yellowish, the abdomen ringed with white lines, and the whole covered with yellowish, woolly hairs. To line its dwelling, it cuts out circular pieces from the leaves of roses, the petals of pelargoniums, &c., and the whole has been thus described :—

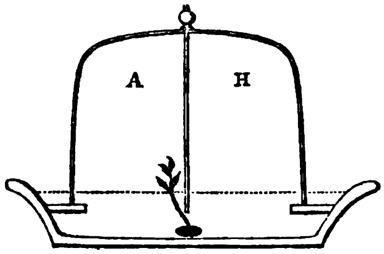
"August 2.—Cut out this morning, from an old oaken rail, the nest of the Carpenter bee—a curious receptacle, well known to many persons; but yet it merits attention, because it seems to be a construction upon which more than usual foresight has been manifested—it not being merely an asylum in which the young may be matured in quiet, but secured against external annoyance from its most destructive enemy by a contrivance so unusual and effective, that it appears formed from the result of a reasoning upon probabilities. This creature—a short, stout, plain bee—mines a tubular channel into some decayed woody substance—a post, pale, or some such thing—boring in the direction of the fibre, making her repository at the bottom, being sufficiently deep for her purpose. She cuts from the leaf of a rose several large pieces, often an half, conveying them to the bottom of her cave, and rolling them up so as to form a case; in this she deposits an egg. The mouth of the cave is then covered with five or six circular patches of leaves; fragments of wood, like saw-dust, are then lodged over them, and the remainder of this channel filled up with other patches of the leaf, requiring, perhaps, twenty or more to accomplish it. This requires no great effort or time to effect, the active workman labouring with great assiduity; but the conveyance of the fragments which form the nest seems to be attended with much fatigue, for I have often seen this bee, with its burden drawn between its legs, retire to rest against the bole of a tree, or upon a wall, the abdomen contracting and dilating with rapidity, like the sides of a creature after exertion. Having acquired strength, her labours are resumed. All these layers and sawdust are designed to secure the larva from punctures by the Ichneumon fly, which is constantly seeking for caterpillars of various insects, in which to deposit her egg: this hatches and grows with their growth, feeding on their vitals, consuming them, and perfecting itself. But all these guards effectually prevent the purport of the fly—the larva remaining safe in its asylum until sufficiently matured; it then penetrates through all these layers, assuming the form of the parent bee. I believe the rose, and the cytisus laburnum only, are made use of for these circular layers. In this specimen the larva was perfected; but, at an earlier period, an egg would have been found, with a reservoir of glutinous matter near it, to constitute the food of the hatched creature."



As the young root, described at p. 206, always advances in the direction most suited to its nourishment, and into the medium where it can best exercise its functions, so does the young plantlet as invariably direct itself towards the surface of the soil, where its leaves, stem, and other superior parts can develope themselves, and perform the functions designed for them at their creation.

The requisites, in search of which their upward course is directed, are air and light, but especially the first, for the plantlet rises above the surface, though the seed is germinated in a totally dark room;

but if the seed of an aquatic plant be germinated in water, under a double glass receiver, like the accompanying drawing, one compartment of which is filled with hydrogen, or nitrogen, and the other compartment with atmospheric air, the plantlet invariably directs its growth into the latter. We also know that germinated seed, placed *in vacuo*, refuse to advance any further in vegetation.



The absorption of moisture, and consequent enlargement of the cotyledons of a seed, is followed by another change in them. Oxygen gas is absorbed, and carbonic acid gas is evolved, the starchy nature of the seed being completely changed—it usually becoming sugary, though sometimes it attains acidity—but in every case its components become soluble in water, more liquid, and adapted to the nutriment of the embryo plant. The quantity of oxygen absorbed by seeds differs in every species, but they entirely agree in emitting it all again in the form of carbonic acid; it is absorbed, therefore, for the purpose of diminishing the seed's carbon.

The seeds of beans and lettuces absorb the one-hundredth part of their weight of oxygen, to enable them to germinate; purslain, onion, and radish seed, the one-thousandth only; and the weight absorbed is always proportionate to the weight of the cotyledon.

The fact of carbonic acid being extricated, aids to explain why germination proceeds more slowly in clay soils, and in soils rolled firm, even under otherwise favourable contingencies, than it does in porous, well-pulverised soils. Not only does the atmospheric air get to the seed in the former soils with more difficulty, but in these the carbonic acid emitted, during germination, is confined in immediate contact with the seed; and M. Saussre found that carbonic acid, almost in any proportion, retards the commencement of germination.

That the atmospheric air is that mixture of oxygen and nitrogen gases which is most favourable to the due progress of germination, is proved by the experiments of M. Saussure; for he found that seeds germinating in it always absorbed a portion of the nitrogen, but which they did not do if the proportion of oxygen was increased.

These facts hold out some beacons worthy of being attended to, as guides for the operation of *sowing*. They point out that every kind of seed has a particular depth below the surface, at which it germinates most vigorously, as securing to it the most appropriate degree of moisture, of oxygen gas, and of warmth. From a quarter of an inch to two inches beneath the surface appear to be the limits for the seeds of plants usually the objects of cultivation; these, however, must vary for the same seeds in different grounds and countries. The depth must be the least in clayey soils and dry climates. Sowing should in general be performed in dry weather, especially on heavy soils, not only because of the greater saving of labour, but because it prevents the seed being enveloped with a coat of earth impermeable by the air, "which," says Sir H. Davy, "is one cause of the unproductiveness of cold, clayey soils." Perhaps the time at which any ground may be *raked* with the greatest facility, is as good a practical criterion as any, to judge when it is most fit for sowing. In general, if clay does not predominate in its constitution, a soil rakes best just after it has been turned up with the spade. If clay does predominate, it usually rakes with most facility after it has been dug two or three days, and then immediately after a gentle rain. But it is certain that the sooner seed is sown after the soil is dug for its reception, the earlier it germinates. In the droughts of summer, water is often required to newly-sown beds. Such application must not be very limited or transitory; for, if the soil is only moistened at the immediate time of sowing, it induces the appearance of the radicle, which, in very parching weather, and in clayey caking soil, we have known wither away, and the crop to be consequently lost from the want of a continued supply of moisture.

PURSUING our plan of inserting such answers, editorially, as we consider generally interesting, though called forth by a correspondent's particular inquiry, we do so, in the present instance, relative to the mode of heating a small pit.

A correspondent, signing himself "P. T. R.," writes thus:—

"I have a four-light pit, 18 feet by 5 feet, and now heated by linings of dung. In this pit I am growing cucumbers, and succeeding pretty well; but several inconveniences present themselves. First, I have to buy the dung, which has to be fetched some distance. Secondly, the time, trouble, and expense of often stirring it are objectionable; and, thirdly, the appearance is bad. By what means can I obviate these inconveniences, without much expense? I have an Arnott's stove; can that be made applicable? or, what other plan can you recommend, and what expense will be probable in making the alteration you advise?"

Now, to those queries we reply that, though dung is dirty, troublesome, and expensive, Arnott's stove would not be much better. Heating by hot water would be cleanest, least troublesome, and the cheapest in the end. A small boiler, supplying a tank below the bed, and that again covered with open rubble beneath the soil, such as that described by Mr. Fish, in page 337 of last volume, would answer admirably; only that the sides of the pit would prevent the necessity for having the strong wooden box, though the slender inner one had better be retained, so that it might have a dry, or moist atmospheric heat at pleasure. The tank, too, would be large enough if 2½ feet wide, and 6 inches deep; and, instead of wood, might be made of brick and cement, the bottom consisting of a layer of bricks, and then thin tiles laid in the best cement; the sides of two courses of bricks, laid flat, in cement; the division of a brick edgeways; and then covered, if not with slabs, with the best rough roofing-slate. Such a boiler would probably cost about two pounds; the lead piping, to connect it with the tank, something more than that sum; and the bricks, and cement, and slates, the bricklayer would at once tell the cost of in any locality.

A second plan would be to form a chamber, by placing a bottom, with slabs of slate, across the bed, and runnning some hot-water-pipes through the chamber below, covering the slate with rubble, and leaving part exposed, at the back and the front, for atmospheric heat. Two four-inch pipes would be sufficient for this purpose; the cost of which, without fixing, would be fully two pounds more; and then the slate would have to be calculated.

A third plan—and, perhaps, the cheapest—would be to have two three-inch, or even two two-inch, pipes for bottom-heat, and the same for top-temperature, with the means, by stop-cocks, of using either only two pipes, or all of them, at pleasure, those pipes, intended for supplying bottom-heat, being surrounded to a depth of at least fifteen or eighteen inches, with clickers, stones, brickbats, &c., below the soil in which the cucumbers are to be grown, with tubes left so, that by pouring down water moisture, may always be secured. The same plan may be adopted with the second system, instead of a chamber. Here there would be no expense but the boiler and pipes; and the latter may be procured, according to their size, from 8d. to 1s. per foot.

THE FRUIT-GARDEN.

HORIZONTAL AND FAN TRAINING.—We are reminded, by a correspondent or two, that a few remarks on the above were promised so long ago as June—it is getting high time the promise was made good. Our observations must, however, be brief; for other matters press, on account of the advancing season; and, indeed, we would not willingly give any undue amount of importance to modes of training on which so little of the fruitfulness of trees depend, as compared with summer pruning, the due preparation of soil, &c. We will dismiss all considerations of the comparative or ornamental appearance of the two modes, and confine ourselves merely to eligibility, based on a permanent fruitfulness.

The chief advantage of the horizontal mode would seem to lie in the fact of its having a tendency to equalise the light in a superior degree. This it does, for every portion of the shoots possess an equal chance in this respect. A main leader is carried up perpendicularly, from whence the side branches are carried at right angles to the main stem. These, of course, must be equi-distant at all points; and whether clothed with spurs or young shoots, all possess an equal chance of light. Not so the fan system; the shoots here, in the main, by radiating from one common centre, are of necessity much more crowded in the centre than at the extremities—hence the great tendency in peach and nectarine trees, badly managed, to become naked; and hence the tendency, also, in the lower wood to be more infested with the earliest aphides of the season, which here meet with a snug hatching-place; whilst, farther on in the season, they will as readily infest the extremities.

Thus far, then, the balance would appear to be in favour of the horizontal mode. We must, however, suspend our judgment awhile, and see what other bearings the question has. First, then, any damage that occurs, or decay of any portion of the tree, is much easier, and more speedily repaired, under the fan system than the horizontal. Indeed, in the latter case, if one of the side shoots of an established tree should canker or die, two or three years will pass before the blemish can be made good, and the defect will attract double the notice of any such in the fan mode, inasmuch as the whole tree bears a much more methodical impress. For *peaches*, *nectarines*, and *apricots*, therefore, we consider the ordinary fan mode far superior, inasmuch as they are peculiarly liable to accidents in the principal shoots; and the objections which we, in candour, urged against the fan mode, are anything but insuperable: good management will, at all times, overcome them with ease.

The *plum* might be subjected, perhaps, to a horizontal system, for the wood of plums is of a tolerably permanent character; but it would be difficult to point out the advantages. *Cherries* are rather too unruly in their wood to apply the horizontal mode to; and, therefore, we apprehend it is more at home with the *apple*, and the *pear*, than with our other fruits: for the latter, indeed, we should not hesitate to recommend it, more especially as it offers unusual facilities to the amateur of continually introducing new kinds, even on a single tree; for nothing is requisite but to graft on any portion of any one of the horizontal branches, and when the graft grows, to tie it down on the main shoot, instead of attempting the old and fallacious mode of pruning for spurs. The graft in the latter position merely occupies the place of the young spray of the shoot; and, in this way, a score of grafts, if necessary, may be introduced on a single bough.

On the whole, therefore, our advice is, be content with the old fan mode, or some modification of it, for general purposes; and to those who are about establishing the pear on walls or gables, choose the horizontal, in order to be able to introduce grafts of new kinds with facility; for, in our opinion, before many years have passed away, many of our pears, now considered worthy of cultivation, will be discarded altogether, and either another race, or pears hitherto placed in an inferior grade—because ill understood—will assume a higher position. The immense quantity of pears on the quince which have been sent through the country of late by Mr. Rivers, and some others, will, in a year or two, set the quince stock question at rest; for, if any real advance be made this way, it must assuredly be through the medium of the stock and the platform question, perhaps, in combination.

PEAR-PRUNING.—And now we have been drawn into observations on pears, it will, perhaps, be well to finish our paper with hints to pear pruners; for spring is at hand, with its usual pressure of business.

Everybody knows that our gardeners of the old time had but one method of pear pruning; they must be "spurred back." As to asking the reason, "they would give no man a reason on compulsion"—not they. Such would seem to involve the loss of a serious amount of liberty, not altogether compatible with the British character. However, spurring back was adhered to with reverential awe—and no wonder, the memory of their time-honoured grandsires was fairly woven into the question. Nevertheless, time, who wears holes in the hardest rocks, drew aside the sombre veil of prescription, covered with the dust of ages, and folks began to rub their eyes anew. It was now discovered that gardeners cannot manufacture spurs by the pruning knife, although they can excite a vast amount of shoots. Hence arose, if not an aversion to, at least a jealousy of the knife; and those beautiful-looking systems of winter pruning, which used to adorn the pages of the clever Mr. Loudon, have, we conceive, been used by the butterman long since. Our reason for taking the liberty of joking on so serious a matter is, that we may disabuse the minds of amateur cottage gardeners, and others—who have not watched these things so closely, or for so many years, as we have done — from the fallacy of depending on spruce modes of pruning for producing fruitfulness. We would rather divert their attention to the three great cardinal points in all fruit culture:—namely, root control, selection of stocks, and summer pruning.

And now, as to pear pruning, we have before, in THE COTTAGE GARDENER, alluded to what we have called the "tying-down system." By this we mean the reserving many of the annual shoots at the winter pruning, and tying, or otherwise fastening, them down on the old wood. Pears, say they, bear best on the two-year-old wood; be it so, then let us take care that some of the annual shoots reach two years. We have before repeatedly advised (when discussing summer pruning affairs), that all the shortest-jointed, and early-ripened wood should be left; and now, when the knife must, of necessity, be passed over the trees, in order to correct the omissions of the past summer, let us again advise that every short-jointed shoot, with plump eyes or buds, be tied down to the old wood; not more, however, than one, or at most two, at a given point; and thus proceeding from the root-stock to the extremities, to clothe the wood from end to end. Where this plan is adopted, all barren-looking spurs may at once be cut clean away, unless they give promise of bloom-buds. The hobby, however, must not be ridden too hard: still preserve genuine fruit spurs with the utmost care. Under this system let there be no spurring back, as it is called, of young and grass shoots, in order to create spurs. Such, we know, may sometimes be generated; but it is the exception to the rule. By this tying-down mode, when established, plenty of natural spurs will be produced; and, moreover, the tendency to produce "breast wood" will be lessened exceedingly.

R. ERRINGTON.

THE FLOWER-GARDEN.

HARDY CLIMBERS.—I make a break here, in my description of hardy climbers, and the different purposes to which certain kinds of them may be applied, to describe, and very earnestly to recommend, a certain way of establishing strong varieties of them in groves, in thickets, or on the margin of woods, so as to cover whole trees from the top to the bottom, to festoon between tree and tree, or to form an impenetrable barrier, in imitation of the twining plants which entangle the "bush" or "jungle" in warmer latitudes. Or, if that is out of the question, let us say to clothe some two or three old trees in the corner of the garden, of which naked limbs are anything but beautiful, during the winter season; or even that old ash, whose surface roots monopolise the whole space within their reach.

Those who have never tried the experiment, can form but a little idea of the difficulty of establishing climbers, or any plants whatever, in the immediate vicinity of, or among, full-grown trees. No sooner is a pit opened, filled with good soil, and a thrifty plant of any kind inserted, than the roots of the established trees take possession of the fresh soil, and literally suck all the goodness out of it, before the roots of the young plant have time to extend beyond a few inches; and, in a season or two, the young climber, instead of reaching half-way up the trees, is dying by inches of sheer starvation. Indeed, without some contrivance to overcome the difficulty, it would be easier to cover all the houses in London with roses and honeysuckles, than half the trees on an acre of land in the country. Yet, what is more picturesque than to see long festoons of climbers waving down from the boughs of some old favourite tree? How rich the clusters of the *Glycine sinensis* would look hanging over the lofty boughs of a holly-tree, or some other evergreen of great height! They would appear doubly charming when backed by some good screen of leaves; and so with most flowers which appear before the leaves like those of this Glycine.

Now, there is no more real difficulty in rearing a Glycine, or any other strong climber, against a tree, than there would be in establishing the same plant against the wall of a cottage; except, indeed, what was due to the difference of temperature; and all that is necessary to effect this, is to exclude the roots of the tree from all share in the soil newly-laid for the young plant, and that, too, for the first half dozen years or more. Indeed, the climber should be full-grown before the roots of the tree could have access to its bed, as I can state, from my own experience, that unless that is provided for at first, the experiment must fail, for I have seen the plan tried and failed ten times over.

Some of the best things in the world to carry out this experiment is a set of old tar-barrels, as they last many years when sunk in the ground at the foot of the trees against which it is desired to establish the climbers; and no one need be afraid that plants will not grow in old tar-barrels, or in new barrels, or tubs tarred over on purpose to secure them from wet or damp. All flower-gardeners use tarred boxes every year to grow fancy things in. I have many such in use at Shrubland Park, and I never found that the tar was injurious to the plants. I have also tar-barrels in use, not for climbers, but for plants much more delicate.

Well, then, each tar-barrel is to be bored in the bottom with five holes, one in the middle and four at equal distances all round, and the bung-hole must be stopped very tight. Then open a hole large enough to allow the barrel to be put in down to the rim; then push it down, that the bottom of it may make a mark in the bottom of the pit, pull it out again, and make the hole a foot deeper *in the centre*, scooping out the earth till you come near the mark made by the bottom of the barrel, but that you must leave entire for the barrel to rest on; and when you put it into the pit again, there will be a hollow under it a foot deep. The reason for this is, that the five drainage-holes may lie over the void space, both to facilitate the drainage and to prevent any of the roots of the trees outside from poking in through one of the holes, or rather through all of them, as I once found to my great vexation.

I once put an old herring-barrel down for such a purpose, and left the bottom of the pit quite flat and solid under it, not dreaming that roots would enter by the drainage-holes, but they did; and I really believe they could be enticed to go up to the very top of the tree itself, by heaping barrels or any tubs over each other, and filling them with soil.

The first thing to put in the barrel is a quantity of lime-mortar, rough cinders, or brick-bats, for a good drainage, as the young plants must be copiously supplied with water during the summer, for the first three years at least, for nothing tends to push out climbers so fast as good and regular watering at first; not that they would require to be watered oftener—once a week or ten days would be often enough. Whenever a climber looks unhealthy, or is much attacked with insects, the cause is generally sure to be at the roots; they are not active enough to keep up that supply of sap which is necessary to sustain a rapid growing one. Indeed, no hardy plants in the open ground require half so much water as climbers, and, therefore, the borders, or boxes, or tar-barrels, for them, ought to be particularly well drained. Any kind of old barrel or cask would do for this work, provided it be sound enough to last seven or eight years, and that no holes, or open slits between the staves, are left for strange roots to get through; and by the time the barrel is rotten, and the climbers full-grown, the latter will be able to contend with its foster-parent for nourishment.

About six years ago, I had occasion for 22 guards of this kind, to grow specimens of *scarlet geraniums* in, in a situation where it would have been impossible to manage them in any other way; and the carpenter, who works for the garden, suggested that elm wood boxes would last longer than any other kind of wood buried in chalky soil. I believe he was right, as I cannot perceive that six years' use has had any effect on them. The way he made them is so simple that I shall endeavour to describe it, as that sort of guard would answer as well as the old tar-barrels, and may be had more convenient in many places. The wood was sawed into strips or staves, four inches wide, and half an inch thick; and then cut into 20-inch lengths, that being the depth required for the boxes to grow the specimen geraniums in, and they were 22 inches in diameter, and made without bottoms, only as so many cylinders. D. BEATON.

[We have to apologise to our readers for this abrupt termination. Our able coadjutor had not completed his communication, when he sustained the most severe of domestic losses. This will silence his pen for awhile, but a short time, we hope, will restore his equanimity; and literary employment will be one of the best *secondary* supports to which he can have recourse under his bereavement.—ED. C. G.]

ROUTINE WORK.—Owing to the continued frosty weather, most operations in this department must be viewed rather prospectively. Much may be done in-doors, to forward labour afterwards, by getting sticks, tallies, pegs, twigs, crocks, pots, &c., all in a state of readiness. It always infers bad management to be obliged to have such things attended to in fine weather; more especially if a man can at any time be seen *potching* the ground, and attempting to work in unfavourable weather, when his health, and the true interests of his employer, as well as the dictates of humanity, require that he should be provided with labour under cover. In the smallest garden suitable employment may thus always be found, if a little forethought be exercised; and, in attending to these matters in a wet or frosty day, the men are more happy and cheerful than if they were doing nothing; for idleness is foreign to the nature of our Saxon race—a fact, by-the-by, which has some bearing upon the mischief and evil-doing existing in society. We are so much in the habit of associating the love of flowers with all that is gentle and kind, that we feel convinced such observations are next to thrown away upon the bulk of our readers who possess flower-gardens, because their own benevolence of heart would at once prompt to the course we humbly indicate. But, as we know that the noblest, and yet kindest and gentlest breathing of all philosophy, has not suitably influenced the hearts of many of us, to whom its claims have been addressed, so we fear there may be some—a very few—who love, or affect to love, their flowers, who may yet feel more of the *selfish* than the benevolent towards those who assist in their cultivation; and to those we would urge the adoption of the same course, by that which is dear to most people—their own interests—for considerable experience enables us to state, that to obtain the utmost activity and energy from a man in fine weather, his comfort must be attended to when that weather is wet or stormy.

There are many things, however, which can be appropriately done out-of-doors in frosty weather, if not excessively blusterous—such as exposing the soil, turning composts, charring thinnings and prunings, burning weeds, with scourings of fences, and even clay, all of which are valuable for any, but especially for stiff, soil in flower-gardens; and in making the now *iron* walks a highway, on which all such charred and burnt materials, and manure—when deemed necessary—may be wheeled to their respective positions.

ROSES.—There are none of the family but like a fair supply of manure, to bring their flowers to perfection; and, if not done before, it may be thrown on as a top-dressing in frosty weather. Some of the tenderer Tea-scented and China kinds would be all the better if such dressing were allowed to remain, as a mulching, about their stems, during the winter. In some cases, a layer of moss would be required in addition; and then some spruce, or laurel boughs, should be stuck round them, to shelter the head of the plant; though, in such circumstances, if the head should be injured, the plants will flower strongly from shoots thrown up from the bottom buds. Such kinds, against walls and other fences, in addition to mulching, should have their stems and branches thus protected with evergreen twigs; and, even if neglected previously, it will be advisable to do so, before they are suddenly thawed. Such tender kinds—and other half-hardy plants, that require more protection than mulching with dung, or moss, and sticking some boughs among them—should be taken up in the autumn, and put in, by the heels, in light soil, under a shed; if with a north aspect all the better. A little hay, or other litter, thrown over the stems, when very cold, would preserve them all right until planting time in March or April. *Pruning* any thing of this nature must be avoided, with the general stock, which, if not cut in the autumn, or in mild weather, should be deferred until the buds are beginning to break in the spring; and all the tender kinds should never be pruned until that period, as thus, not only is their safety better secured—a cut in winter being an unpropitious opening for allowing moisture and cold to penetrate—but at that period many nice little shoots, of but an inch in length, may be obtained from the cut off parts, which are just the very thing for making nice little plants quickly, when inserted in a mild bottom-heat, and their little leaves kept from flagging, by a close atmosphere, and dustings from the syringe. But there are many strong-growing, robust kinds that may be pruned at any time, as freely as you would prune a gooseberry-bush; and among these—because, comparatively, little pruning is wanted—we would class the most of the hardy climbers that cover trellises, and are fastened to stakes, or allowed to clamber over dead and living trees, almost at their will. Here the pruning consists chiefly in shortening the main shoots—thinning them out where too abundant—and shortening to a spur, or removing altogether, the small spray that had flowered the previous season, along with all dead and decaying matter. Any tying might be done in the middle of the day, or even left to a future occasion; but the thinning and pruning part could be done as comfortably in frosty weather as at any other time, and even more so, for there would be hard standing for the feet, and the hands might be comfortably ensconced in gloves—one of the few occasions, however, in which a gardener has any use for these muffling appendages.

Flower-beds.—Where these are planted with bulbs, or annuals, for an early display, little can be done, except to mulch the former, and protect the latter with branches, with a mat thrown over either occasionally, in extreme cases. Were we to use annuals to any extent for this purpose, instead of sowing, or planting them out in autumn where they were to blow, we should prefer transplanting them in patches, from a reserve garden, in March. This practice would enable you to give the beds intended for them—as well as those beds which remain empty until they receive their summer and autumn bedding-out plants—frequent turnings, and deep stirrings, during the winter. If this is done in frosty weather, many injurious enemies will receive their death blow. This deep-stirring of the soil will well repay you in the following season, as it will alike prevent your plants from shanking off with an accumulation of moisture, and save you much trouble in dry weather, so far as the use of the water-can is concerned. It matters not whether the plants you use root deeply, or merely carpet the surface of the soil with their fibres; in either case, the deep stirring of the soil of the bed will allow the redundant moisture to escape, and guarantee the raising of a considerable supply from beneath, by means of evaporation and capillary attraction in the hottest weather. It is a mistake, however, to suppose, that in advocating this deep stirring, we wish you to turn down your surface soil, and bring up to the surface, from the depth of a couple of feet or so, the soil found there. This would just be doing what some farmers on a large scale may have done once in their lifetime; and, consequently, ever afterwards became—and with their experience to support them—firm adherents to the scratching four or five inch depth system, beyond which they would deem it next to sacrilege to go. From repeated dressings—from even the handsful of prepared compost, put, year after year, round at least the smaller of your bedding-out plants—the surface-soil of your beds must become ameliorated, whatever be its natural constitution. Instead, therefore, of bringing up an understratum to the surface, as you might do in an old deep-soiled kitchen garden, it is better to mingle only a portion of the under soil with the upper every year. For this purpose, and also to effect this deep stirring, a sufficient opening should be taken out to enable you to dig deeply, or even pick the under soil, and then the surface-earth may be laid in ridges upon the surface again. It is improper, in all cases where much nicety is required—and more especially in such flower-beds which you wish, as soon as possible, to be comfortably warm—to bury at any great depth frozen earth; but the turning of such surface ridges on a frosty day would be attended with the greatest benefit; for, after all, frost is the best and cheapest of all pulverisers and clod crushers.

Secure your plants in pits and frames, and do not be in a hurry to uncover them. Be on the look-out for fermenting material; for cutting-striking time will soon be here. R. Fish.

GREENHOUSE AND WINDOW GARDENING.

Protecting, &c.—Thick and thickening have been the inquiries lately, as to the best means of heating pits, greenhouses, and hothouses; for Mr. Frost arouses attention to many things that should have been thought about before the trees were stripped of their foliage. But the protecting of glass, by means of *external coverings*, is a subject that with many is ill understood, and worse practised. Those who have made the subject matter of inquiry, cannot always act according to their convictions of what is right. Many, who take a pride in their gardens, would rather burn more fuel than be annoyed with the sight of any protecting medium whatever placed over their glass. Sometimes a provisional grant of a hot-water pipe is obtained by some of us, upon the condition that no risk of breaking glass, or taking the *shine* out of paint, is to be encountered from mats or hurdles! Now, with a proper command of a heating medium, it is an easy matter to keep up the requisite temperature even in very cold weather; but we contend there is more injury occasioned by doing so, than would have been effected by smaller fires, in connection with either partial or general covering. This injury is apt to take place from two causes: first, the increased temperature from fire-heat—it matters not in what shape applied—will either dry too much the atmosphere of the house, and thus the plants will be deprived of their juices, so as to endanger the drying up of their tissues; or, secondly, if means are taken, in such circumstances, to communicate moisture to the atmosphere, in proportion to its increased temperature, then the apparent rate of growth will be more a mere extension of what the plant previously contained, than an assimilation of fresh material to its substance. In cold, dull weather, with moderate fires, and suitable outside covering, there would neither be a drying of the stems of the plants, nor yet an encouragement to growth, when the elaborating processes could very imperfectly be carried on.

How, then, is this covering to be effected? Russian mats are the material in most general use, but they are far from being the best as most frequently applied, either to cold pits, or warm pits, &c., namely, throwing them either singly, or in several thicknesses, over the glass. To say nothing of the danger of breakage in such circumstances, in frosty weather, the impropriety of so using them will be seen from these facts:—First, that the mat lying close to the glass, will soon cease to prevent the radiation of heat from it; and then, secondly, as it is no proof against cold rains and sleet, unless when several lie over each other, the glass will soon become as cool with them as without them.

To counteract both of these defects, gardeners are in the habit of enclosing a non-conducting medium, such as dry hay, or straw, between two mats; but this is always attended with more or less of a littery appearance. Now, to humour this prejudice for mats, allow us to give our opinion how they may be made the most of—both as success and economy are concerned. Well, the first thing to be thought of, is to secure a space between them and the glass; and this we advise to be done, by fixing the mats single, or double, fully stretched upon a wooden frame, the size of the sash to be covered. The frame to consist of three pieces of wood, the length of the sash, two for the sides, one for the centre, each from two to three inches wide, and from half to three quarters of an inch thick. Two cross pieces, lighter and narrower, are fixed at each end, to keep the three long ones in their places; and three or four more cross pieces, at intermediate distances, between the ends. If the frames are neatly made, they will fit close to each other, and thus the glass may all be covered, with a body of air shut in between it and the covering. The mat being neither air nor water proof, will not be so effectual as it otherwise might be—as confined air is one of the best non-conductors of heat—but still a great improvement will be effected over merely throwing the mat on the glass, as the heat that is radiated from the glass to the mat will, to a great extent, be radiated back again. I can well recollect what hard thinking, and scratching of the cranium, to bring the brain to the sticking point, these matters occasioned me when there was no cheap Cottage Gardener to pioneer the way as now, and no kind friends to whom the young and inexperienced could refer for answers to what the *greatly learned* might term impertinent and silly questions. Do I envy you? No! I rejoice that you will enjoy many of the advantages that are to be realised in "the good time coming." But let me remind you, that as your privileges are enhanced, so your responsibilities are increased; and that the excuses that availed for older gardeners, will not be deemed available in the cases of the rising race.

Still this matter may not be sufficiently clear to some of our friends, and to them we would present one or two proofs in the way of familiar illustration. You have observed, at certain seasons of the year, that one morning the earth was moistened with dew, every blade of grass drooping with the weight of its sparkling crystal drop; but on the following morning there was not enough of moisture to damp the sole of a lady's slipper. How is this? Understand it thoroughly, and you have a key that will unlock the true theory and practice of protecting plants. We shall merely advert to the prominent reason. In the first case, the night was unclouded and clear; an unobstructed radiation of heat took place from the earth, which was thus rendered colder than the surrounding medium; and thus the moisture, suspended in the air in the shape of vapour, was condensed and deposited as dew. In the second case, the sky was overcast and cloudy, the earth was not greatly cooled, because the heat that was radiated from it was radiated back again by the overhanging clouds. Now, comparing great things with small, you will at once perceive how glass exposed, or with a covering lying close to it, is so much sooner cooled than when the covering, though much slighter, is suspended at a lesser or greater distance from it, in such a manner that the air has no free entrance either at the ends or sides.

Again, and not to enlarge, mark the difference as respects comfort enjoyed by these two gentlemen: one young, in the very pink of fashion, who would rate his tailor and bootmaker, if his articles of clothing were a hair's breadth too large for him to squeeze himself into them; the other an elderly gentleman, who has abjured such folly, and only contends for room and ease. The young man runs the risk of being starved in winter, and scorched in summer. His elderly companion, independently of the ease he feels, escapes from both extremes, owing chiefly to the *air* enclosed between his body and his outer clothing.

Now, we confess, we shall have written for no purpose, if our inexperienced friends, who *will* use mats, will prefer rolling them down upon the glass, instead of supporting them upon a frame, so as to keep the glass completely clear, and thus interpose a body of air as a non-conducting medium. Two men can whip off scores of such covers in a very short time, and without risk of breakage, unless from great carelessness; and one man can pull them down and put them on again with more ease than one man can manage with mats in the usual way. In all cases where practicable, and especially where there is only one man, posts and rails should be put up for the lower end of the cover to rest upon during the day, the other end resting upon the front wall plate of the pit or house.

There is one objection to such covers, especially where there is only one man to put them on. As he is obliged to slide them, the paint will be apt to be rubbed off; but this is easily obviated by tacking on laths to the sides of the sashes, and removing them when the covers may be dispensed with.

Mats, from their thickness and porosity, when thus stretched and tacked to frames, would make capital protectors, were it not for the fact to which we have alluded—namely, that the rains will pass through them in time. To obviate this, the mat might be covered with waterproofed calico, but this would render the covers more expensive. The same object may be cheaply attained by the following method, but it should be done in spring or summer, as then covers would be sooner fit for use:—Get some gas tar, which is cheap enough, heat it as much as to make it thin; set the cover up, reclining in a slanting position, daub its outside over as quickly as possible with the tar, using a large brush for this purpose, and then immediately throwing over it some fine dry sand, or road-drift, or even dry sawdust, and you will possess a cover as valuable for repelling wet and cold as asphalt-felt, much lighter, and considerably cheaper; and which you will be able to turn to many purposes during the season. At a future time, we may advert to the making of such covers with straw, &c.

R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

Giving Air.—If the air, in houses filled with plants, is confined for a length of time, the atmosphere becomes vitiated, or foul, and is not fit for the plants to breathe in. Hence every plant-house ought to be furnished with the means by which fresh air may be admitted. This principle applies to the orchid-house, though, perhaps, not to the same extent as to other houses of plants. The reason, perhaps, is, that most orchids grow naturally in close, moist shady places, where the air—especially during the rainy season—is filled with miasma (putrid exhalations), and so they are constitutionally able to live and thrive longer without fresh air than other tribes of plants. Yet, though they will do longer without a change of air than most other plants, they will not live and thrive altogether without such change. It is certain, that orchids from the hot, damp jungles of India require less air than those from Guatemala, and other parts of America; therefore, more air may be given to the Mexican house than to the Indian one. Besides, the giving of air is necessary frequently to both houses, when the sun shines, to reduce the temperature of the internal atmosphere to the proper degree of heat, so that the plants may not have their growth drawn out, and, consequently, weakened, and thereby rendered unable to produce their beautiful flowers in perfection. Having, as we think, made good our remark, that fresh air is necessary for the orchid-house, both to sweeten the atmosphere, and to reduce the heat when it is too high, we may now inquire the best mode of accomplishing that object.

The methods of giving air to hothouses, greenhouses, and conservatories, are almost as various as the houses themselves. Some have the front sashes to slide across each other, others have them hung in the centre—the bottom pushing outwards, and the top inwards. Some are hung at the top, and when air is given, are pushed outwards with an iron long flat plate, with holes in it to drop on to an iron pin, so as to give more or less air; a fourth set have them to open outwards like a door; and, lastly, some are made to slide downwards. To let the heated air out of the roof, the upper lights are hung with weights to slide downwards. This is the most general mode; sometimes, however, openings are made in the back wall, and wooden shutters are fixed in, hung upon a pivot, to open when necessary. A very ingenious mode of opening the front windows has been adopted in the houses of the Royal Gardens at Frogmore, by which the whole range in one house is opened at once. This is done by a long iron rod, reaching the whole length of the house. To this rod is attached a short one to every window; a winch, turned with a handle at the end, moves the rod backwards and forwards, and each motion opens and shuts each window, or light, when required. A somewhat similar mode may be seen at Messrs. Henderson's, of Pine-apple Place.

All these plans, however, are comparatively useless for giving air to the orchid-house. Let us glance at the form of the house we have recommended:—It is a house with brick walls, and a glass roof. We were happy to find the houses at R. S. Holford's, Esq., (mentioned in the 67th number, page 200, of The Cottage Gardener) were all of this form. The method we recommend to give air by, is with wooden shutters, let into the wall at intervals of 4 feet between each, on each side of the house. The wooden shutters, or doors, should be 2½ feet long by 15 inches broad. A frame of wood ought be fitted into the opening in the wall, to hang the shutters on. These should swing on the centre with two iron pins, so that when open they will be horizontal, and let the air into the house plentifully. When less air is required, every other aperture need only be opened, or the shutters may be propped only half open. When they are opened, the fresh air will rush in, and meeting with the pipes in its progress, will be partially heated and softened before it comes in contact with the plants—a point worth attending to. For nine months in the year this way of giving air to the Indian house will be found all that is wanted. During the three hot months of summer, it will be necessary to give some air at the highest part of the roof. We mentioned this when writing about and describing the houses suitable for orchids. The ridge of the house should be made flat, about nine inches broad, and part of it made moveable to lift up with an iron rod, whenever the heat of the internal air exceeds the proper degree. This is the guide on all occasions, and at all seasons. When the heat is too much, give air.

It will be found that the Mexican house requires more frequently to have air given to it than the other, because the plants in it do not require so much heat. We frequently give air to this house, even at this time of the year; for if the sun shines even now, the thermometer will rise rapidly; and to keep it down air will be necessary. If air is not given, the heat will soon be too much for the plants, and will have the effect of exciting them to grow before the right season. The shoots will then be weak, and very likely to perish. To know, at all times, when to give air, have a copy of the table of heat for the orchid-house, given at page 168 of this volume, copied, and hung up in a convenient place, to refer to.

Notices of Plants that Require Peculiar Treatment: *Anæctochilus setaceus* (Bristly anæctochilus), *A. var. pictus* (Painted bristly A.).—These two plants are so extremely beautiful, that we judge a particular notice of them, and their culture (which is rather difficult), will be acceptable to all our readers that are orchid growers. They are found growing on the ground in shady places, in the Island of Ceylon. A gentleman 'called at Pine-apple Place last summer, and informed us that he had a considerable estate in that island, and that the anæctochilus grew under the hedges quite common there. The natives admire it much, and give it the regal name of "The King of the Woods," and well it deserves the title, for it is, indeed, a gem of the vegetable world of the first water; but yet the leaves are the only part that attract our admiration. The flowers, though various, are not at all beautiful. Such of our readers as have been favoured with a sight of this plant will agree with us, that the leaves are the most beautiful of all the leaves in the world. The ground colour is of a dark velvety-green, tinged with a metallic lustre, curiously inlaid, as it were, with streaks of golden net-work. If examined with a moderate microscope, when the sun is shining, this golden net-work is really glorious, having the appearance of the richest rubies. But no description can do justice to the beauty of the leaves of this plant. The variety named *pictus*, or painted—brought home, we believe, by Mr. Gibson from the Khorea hills, India—has a broad stripe of yellow down the centre of each leaf, in addition to the golden net-work. It is equally beautiful with the original species, but, if anything, more difficult to cultivate. Messrs. Low and Co., of the Clapton Nurseries, have imported another variety from Borneo, of a stronger growth, and on that account worth cultivating, though not quite so beautiful as the other two varieties. We must defer the cultivation of these interesting plants till next week.

FLORISTS' FLOWERS.

The winter has hitherto been more severe than ordinary, and, therefore, has called forth the extra care of the florist to protect his favourite flowers from its severity. Should the frost, notwithstanding your care, have reached the plants of *Verbenas*, *Petunias*, *Calceolarias*, &c., do not be in a *hurry* to thaw them. Keep them in the dark for a while after the frost breaks up; and do not water them over the leaves, as some recommend, or even water them at all. Mark this:—*The more slowly they thaw, the more likely they are to recover from the effects of the frost.* The sudden effects of heat applied to a frozen plant, as to a human limb, or body, does all the mischief. *Plants in frames*, that have been securely preserved from frost may, when the sun shines sufficiently strong, be uncovered for a few hours, to dry up the damps, with the most beneficial results.

Yellow Picotees.—In answer to a correspondent (*R. O., Newcastle-on-Tyne*), the following can be obtained at Messrs. Henderson's, Pine-apple Place, by applying to Mr. Appleby:—

1. *Martin's Queen Victoria*, 3s. 6d. the pair; free grower, and good yellow; red edged.
2. *Princess Ida*, 3s. 6d. the pair; also a free grower, and good yellow; pink edged.
3. *Pride of Pont*, 5s. the pair; delicate grower, a good picotee, fine colour, and good substance.

There are no yellow carnations. The following are extra good:—

Brooke's Flora's Garland, rose flake, 5s. the pair. This is the best carnation known, every quality being perfect.

Wilson's William the Fourth, scarlet flake, excellent, 2s. the pair.

Hepworth's Hector, pink and purple bizarre; a flower of good substance. 3s. 6d. the pair.

Mansley's Robert Burns, crimson bizarre; 2s. 6d. the pair; very good.

Woolmer's Conquering Hero, scarlet bizarre; the best of its class; 3s. 6d. the pair.

Auriculas.—In answer to another correspondent (*G. Hodgeden, Tavistock*), we are sorry the former list of auriculas did not suit. You asked for a list of the best. Below is a list of the same number of good old cheaper ones.

Green edged.—Barlow's King, 1s. each; Buckley's Jolly Tar, 1s. 6d. each; Ward's Blucher, 1s. each.

Grey edged.—Ashworth's Man of War, 1s. 6d. each.; Metcalf's Lancashire Hero, 1s. each; Tayler's Plough Boy, 1s. each.

White edged.—Hugh's Pillar of Beauty, 1s.; Lee's Bright Venus, 1s.; Pott's Regulator, 1s.

Selfs.—Berry's Lord Primate, 1s. 6d.; Mellon's Lord Howe, 1s. 6d.; Whitaker's True Blue. 1s. 6d.

T. Appleby.

THE KITCHEN-GARDEN.

The severity of the weather has retarded many operations of the kitchen-garden previously recommended; as soon as the weather changes, advantage of the change should immediately be taken, and all those operations carried out without further delay.

Cabbages.—Very possibly the severity of the weather has made some havoc amongst the early cabbage plants; when the weather permits, no time should be lost in filling up all vacancies with the strongest plants from the reserve beds.

Cauliflowers.—The early plants, which were placed under hand-glasses in November or December, will probably be much injured, unless the precautions have been taken of covering over the glasses, and dredging about the plants with dry dust. Those which have been grown in pots will be worthy of extra attention when the season arrives for turning them out into well-prepared soil. The hand-glasses which have been washed, glazed, puttied, and painted, and placed away under cover, will then be in good condition for nursing such things. Those which have been placed under hand-glasses during the winter, if not well-attended to throughout this present severe season, will wear a sorrowful appearance at the time when rapid growth should be taking place.

Jerusalem Artichokes and Horseradish may be trenched out, where not already done, and where the surface of the ground has been covered with some kind of mulch. Indeed, any sort of trenching of spare ground may be performed, where the wheeling-on and spreading of the manure had been effected before the setting-in of the frost.

Tarragon and Mint should be placed, for succession, in heat. Parsley, in pots, should receive liberal soakings of liquid-manure. It is particularly fond of soot-water.

In-door-Work.—Attend especially to everything that can be done in-doors whilst this severe weather lasts. *Potatoes* look over; see that no diseased ones remain amongst the bulk; select a quantity of a suitable size for planting (to be planted whole), if this has not been done before. Have nothing in this way to do when the day for planting comes; attend to *early planting*, if you did not or could not plant in November. *Onions*, *Carrots*, *Parsnips*, *Turnips*, *Beet-root*, *Scorzonera, and Salsafy.*—See that no decayed roots remain among any of these; also rub off all fibrous roots and shoots. Let order and neatness, with cleanliness in all these vegetable store-sheds, be especially regarded. Those who saved their own favourite sort of *Peas* or *Beans*, and put them away in the pods, should now have them all thrashed out, or shelled, in readiness for sowing and planting. Labels may also be made, and written for the same, ready to put in with the crop. See that the *Mushroom beds* are well covered up in cold sheds; use refuse-hay for this purpose. Be on the alert preparing *hot-bed materials* and pay particular attention to Mr. Errington's plan for making up very strong early cucumber and melon beds, and make slight hot-beds for *potatoes*, *carrots*, and *radishes*. Sow *radishes* in warm borders, to be covered slightly with straw, fern, or evergreen trimmings of any kind. These sowings should be made rather thick, and will be found very useful, as successional crops, to those which are sown on gentle hot-beds. Plant *broad beans* extensively, and *peas* also, as soon as the ground can be worked. Those who are short of *lettuce plants*, might sow a pinch of seed with their early sown radishes, in frames, or in pans, and place them in a little heat; and when they are up and strong enough, another slight hot-bed might be made nearly or quite level, to be covered with an old frame if you have it; and if it be a deep one, fill it half up with the same materials with which the bed is made, adding from six to nine inches of good earth of any kind, in which to prick out the young plants three or four inches apart. Water them with a fine rose-waterpot, with tepid water, to settle the earth to the roots; put on the glass lights immediately, and let them remain so for two or three days; then give a little air, and continue to admit more and more air, and stir the earth frequently with a little pointed stick. Lettuce plants, nursed in this way, will be found nearly as forward as those that have stood the winter, and were sown in August last. Give plenty of air on all fine days, and as the plants become strong enough, take the lights quite off. Plants raised in this way, may be lifted with good roots into the open quarters, in mild weather, towards the end of February. J. BARNES & W.

MISCELLANEOUS INFORMATION.

OUR VILLAGE WALKS.

No. 16.

IT is a pity that every little cottage cannot be built with a warm southern aspect: there is so much comfort and cheerfulness in the beams of the sun, even on a winter's day. I think this point might be more attended to than it is; and that, very often, indifference, or want of thought, have more to do with the matter than the situation of the ground on which the cottage is built. Of course, it is not always possible to face the sun, especially in villages; but if, when persons are building for the poor, they took a little thought for the comfort, enjoyment, and health of their humble tenants, they might do a great deal more to promote them than is now the case, and without trouble or loss to themselves at the same time.

Cottages are, very often, stuck up any how, and any where: they are thinly built, and no sort of regard is paid to the situation. A cottage *pays* well, for some one is sure to take it; and a high rent is demanded—perhaps between three or four pounds—for two small, ill-ventilated rooms, and a little portion of ground, scarcely large enough to keep the family half the year in potatoes. In villages, the rents are enormous. I know that for very small tenements, containing four little rooms, and a "wood-house," six pounds are given, without a garden, or even a border to grow pinks and wall-flowers. Very little regard is paid to necessary repairs, in any case. Water will drop through the ceiling upon the beds, year after year, and nothing is done to prevent it. The rent is strictly exacted: the tenant may go, if he likes; if not, he must take all things as they are. I have known this in more instances than one, and I fear it is frequently the case. Landlords among the lower classes are, I am afraid, less considerate of their poorer brethren than the gentry. They are also more restricted in their means, in some cases, and dislike laying out money which makes no return. Small farmers, shopkeepers, and others in that class of life, frequently possess cottages which are occupied by the poor; and these are often very much neglected, and in scarcely habitable condition. They are seldom large enough to contain a family with comfort; and propriety is set at defiance. A whole household will often be obliged to inhabit one sleeping-room; and two is the utmost that any labourer's cottage contains. Much is doing, in many ways, for the poor, but their health and comfort would be greatly increased if their dwellings were improved where it can be effected. I think much would be altered in this, as in every other case, if men would regard every thing they possess as a talent committed to them by God. Men would not dare to "grind the faces of the poor," nor to neglect even their common daily comforts, if they looked steadily up to the Father of us all, and strove to be "perfect, even as our Father which is in heaven is perfect." They would not then be so likely to take a heavy rent from their poor tenant, and leave him with a door through which the winds whistle, and a roof that cannot keep out the wet. They would try, as far as they could, to soften the sufferings of the poor, and, at least, to give him a fair return for the money he pays. It is not the act of a Christian to neglect a fellow-creature's simplest comforts, because he can go away if he likes. The poor cannot always go away; and if they could, it is not a brotherly act to drive him from us by means like these.

When we pass through some of our English villages—interesting, beautiful as they are, taken as the features of our free and happy land—what wretched hovels we sometimes see, shrinking, as if from sight, behind the neater, and more pleasing, cottages that stand before them! What damps, and rheumatisms, and diseases lurk within them! and how uncheered are they by warmth and sunshine! Who could be satisfied to take rent for such sheds as these? How can one man, bearing the holy name of Christian, take rent from another for such miserable dwellings as these? It seems as if it would be a Christian's pleasure—part of his joyful service to a tenderly-pitying Master—to do all he can for the children of that Master, setting aside their claim to his kindness as brethren. "Inasmuch as ye have done it unto me," should be sounding perpetually in our ears. How that musical vibration would deafen us to the cry of selfishness, covetousness, and advantage! I have known persons, "possessing godliness," extremely unconcerned about such matters as these. I have known persons of great decency and respectability let their cottages as beer-houses, to gain a higher rent; thus laying snares for the souls of men, and saying, as loudly as deeds can say—"Am I my brother's keeper?" It may be, that some 'Cottage Gardeners'—some of my very indulgent readers—may possess cottages as well as gardens, and to them I would address one word. "Village Walks" suggest many ideas, and lead us sometimes from the woods and fields to the street and the dwelling. Can a cottage gardener enjoy his warm, snug kitchen, and blazing fire, while the wind blows heavily, and rain patters against the lattice, if he knows that the poor man's door admits every gust through its gaping chinks—that the roof is dripping with the storm, and that the window, stuffed with paper and rags, chills the shivering inmates, as they creep into their cold, hard beds? How much more would the cottage landlord enjoy his thriving, abundant garden, if he felt that his tenants were enjoying theirs also—that their windows were sound—that the winds beat against a neat, close-fitting door—that the glittering, beautiful icicles fringed a stout, warm thatch—and that, if poverty and misery were within, they did not rest on his conscience! How much more cheerily would his daily work go on! How much more calm and sweet would be his rest! A village belonging to such landlords would be a refreshing sight even among the beautiful villages we so often see. There would be a comfort, as well as a loveliness, in the bowery cottages that so often please the eye, covered with graceful, simple creepers; and yet, in many ways, so insufficient to promote the domestic comfort of the inmates now; often arising from thoughtlessness for the need of other, though, in some cases, from selfishness and avarice. Every cottage ought to possess a piece of ground: this is a positive necessity; for how can a poor man hope to support a family without the power of growing one single cabbage? A kind, tender consideration for the good of others, even in apparently trifling things, creates a large amount of blessing. And, even in a worldly sense, a bad landlord gains nothing, but loses much, besides the pleasure of benefiting his fellow-creatures. There is so much interest—national, English interest—in our villages and hamlets, that whatever adds to their beauty and their convenience, adds to the good of England. A blessing, too, will ever rest upon those who seek, in any way, to benefit their brethren; and let us not forget that the cry of the poor, from whatever cause, enters into the ever-listening ear of "the Lord of Sabaoth!"

DESTROYING MICE AND COCKROACHES.

Some two or three years ago, I was troubled with mice and cockroaches. The mice walked about my kitchen very deliberately, even in the daytime, and the cockroaches covered the floor of the kitchen and the dresser, which holds my crockery ware, every night. I tried many things to get rid of these plagues, but without effect. I then saw in the "Journal de Chemie Medic" the following:—"Phosphorous paste to destroy rats, mice, &c., &c. I sent immediately to Ferris and Score, chemists, Bristol, for some of the paste. In ten days my house was completely cleared of mice and cockroaches. The mice have occasionally re-appeared; but I have never seen a cockroach since I used the paste. My mode of using was to have some pieces of common lath, about 10 in. long, which were distributed on the floor of the kitchen and on the dresser.

The *Phosphorus paste* is thus made:—Take of phosphorus, eight parts, liquify it in 180 parts of luke-warm water; pour the whole into a mortar, and add, immediately, 180 parts of rye meal; when cold, mix in 180 parts of butter, melted, and 125 parts of sugar.

It will be eaten with avidity; after which these vermin will swell out, and soon die. It will retain its efficacy for many years, and it cannot be employed for poisoning human beings, on account of the smell. —(Published by an ordinance of the Government of Prussia.)

P.S.—Finely powdered arsenic, mixed with treacle, and smeared over pieces of lath, placed in the *beat* of cockroaches, will destroy them. Dianthus.

SOWING PEAS.

In the long list of peas, given last week in The Cottage Gardener, where I see many useful hints as to the varieties and cultivation, &c., one in particular struck my notice, called *Bishop's long pod*, which is said to be a good bearer, grows two feet high, and is as large as the *Scymetar*. Mr. Hairs recommends it to be sown in rows, two feet wide—that is, from row to row, and four inches from pea to pea in the row. This is making no allowance for the vermin the culturist has to contend with. Should he be guided by the above advice, and as soon as the weather breaks up, purchases a pint or a quart of this excellent pea, having a plot of ground well prepared, and, taking advantage of the first fine day, draws his drills and sows his peas four inches from pea to pea in the row, he will find many bare places in spring. Every seed may not vegetate, and at every failure there will be 8 inches from pea to pea in the row, and possibly two peas together might fail, in which case there will be 12 inches space from plant to plant in the row. The mole, perhaps, will not think it worth his while to search here for a meal; and the slug will be much perplexed, having so far to travel from one bait to another; but the cunning sparrow will pop down from some place or other and nip off a pea, and away again for the present.

Now, should any of this excellent pea come to my hand this season to sow, I shall draw my drills as I always do (taking the hint), two feet, or two feet 6 inches from row to row, but the seed I shall sow as thick as I should a Scymetar or any other pea at this season of the year.

Of course, the season of sowing has much to do with the quantity of seed to be sown. A sowing made in the last week in November, or the first week in December, should be in good broad-bottomed drills, so as to have plenty of room to receive a larger quantity of seed, knowing what a number of enemies these rows of peas are subject to, before the sticking time comes; yes, and how often it happens, notwithstanding thick sowings, and all other schemes and contrivances, for protecting them from rough weather and vermin, when sticking time comes, the crop is not worth sticking.

Another sowing shall be made of the same kind of pea towards the middle of January, and full a third less seed need be sown to insure a good standing, or certain crop; and so on, as the season advances, less seed is required to insure good crops. Notwithstanding, I always prefer sowing rather too thick than too thin, in all cases.—T. Weaver, *Gardener to the Warden of Winchester College.*

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of The Cottage Gardener. It gives them unjustifiable trouble and expense; and we also request our coadjutors *under no circumstances* to reply to such private communications.

Allamanda Cathartica (*An old Gardener*).—You have erred in cutting your plant down in the spring. If you have five feet of wood, pretty well ripened, let the plant grow on, and you will, most probably, be rewarded with blooms during the summer.

Cockroaches (*J. Tombe*).—The poisonous component in red wafers, which you say have greatly diminished the number of cockroaches, is the red oxide of lead, usually called red lead. Chloride of lime, dissolved in water, and sprinkled about where they frequent, will remove the smell they occasion.

Seedsmen's Catalogues.—We cannot give extracts from mere lists. Those who take the trouble of making their catalogues very useful, by describing the heights of varieties, qualities, times of sowing, &c., deserve quotation.

Clinkers, &c., from Factory (*J. H. S.*).—You may very safely use these for making the foundation of your garden walks, without any injury to the roots of your fruit-trees adjoining. Two very excellent *dessert apples* are the Kerry pippin, and the Lamb-abbey Pearmain. Two first-rate *dessert pears* are Beurre d'Amalis, and Louis Bonne of Jersey. Grow them all as standards. Of *gooseberries* for preserving, and other domestic purposes, none are superior to the red Warrington. For dessert, London (red), Drill (yellow), Thumper (green), and Freedom (white), are as good as any.

Butter (*T. W. L.*).—It is quite certain that the buttermilk cannot be separated from butter unless some salt be added. A quarter of an ounce of salt, very finely pounded, to every pound of butter is a good proportion. Such questions, however, belong to The Domestic Economist.

Plants in Greenhouse (*C. C.*).—You have kept the temperature by means of your coach-house stove from falling below 35° or 38°. Your fuchsias, &c., are quite safe even at the lowest of these temperatures. As you have watered them, and kept them growing, you must continue to keep the soil just from being quite dry, by adding water occasionally. We should not have given any water during the continuance of frost, and have been satisfied with keeping out actual freezing. You are not far wrong in saying that "watering is the amateur gardener's *pons asinorum*" in pot culture.

Seedling Quickset (*S.*).—Our correspondent wishes that some nurseryman in Scotland would state the rate at which he would supply a large quantity of this. We have at present none of the seeds you mention. What is your direction?

Peas (*H. X.*).—You will find a description of *Burbidge's Eclipse* at p. 194. Of the variety called *Ne plus ultra*, we have no knowledge.

Vegetable Refuse (*X. X.*).—Common salt mixed with this will help to decompose it, and convert it into a useful manure; but either quicklime or gas ammoniacal liquor will decompose it much more quickly; and as a manure, the mixture with the ammoniacal liquor is by far the most valuable.

Tea-scented Roses (*A Lover of Flowers*).—These, and some other delicate varieties which you took up in November, and potted for protection in a cold frame, you may return into the borders at the beginning of May, or repot them as soon as the present pots are full of roots, but not before. Whichever plan you adopt, do not disturb the roots. The tender parts of the tops may be cut in next April. When these roses get old, and have strong roots, the best plan is to leave them in the beds, and shelter them well.

Cochin China Fowls (*E. Mugridge*).—They have not five toes. We will publish your letter next week, and get you all the information we can.

Bees (*P. T. R.*).—You have bees, in three common hives (straw), each of which is placed on the centre box of a set of collateral boxes, three in a set: the said centre box is filled with comb, but now the honey is all eaten. You want to keep them in the centre box, and that they may work in the side boxes, and you ask—can this be accomplished, or how are you to remove them from the straw hive to the box beneath? You cannot remove your bees from the straw hive to the centre box without the risk, or rather the certainty, of destroying them all. Your best plan will be to remove the boxes entirely, leaving the bees in the straw hive, in the same place where they now stand, and allow them to swarm, and then put the *swarm* into the centre box, leaving in it the empty combs as it now stands.

Bees (*Ibid*).—You have also two straw hives, each of which is placed on the top of a box full of comb, but now all the honey is gone. When full, you ask how you can take away either the top one or the bottom one, and which ought to be removed, and by what means? Your straw hives, placed upon the tops of boxes, had better be separated from the boxes; and, in April, place upon the *top* of each hive a small hive, or box, as recommended at page 305 of vol. i. of The Cottage Gardener. Should they be suffered to remain as they now are, you cannot have fine honey in either; both will contain pollen and brood, nor can you tell in which the queen may be.

Scarlet Geraniums (*Tom Thumb*).—You may cultivate these either according to the digest to which you refer, and which we consider the best, or according to "Aunt Harriet's plan." There are always more than one way to effect a purpose.

Enclosure for Fowls (*J. N.*).—Your irregular space, containing about twenty square yards, is enough for your purpose. We should lay it down partly with turf, and partly with sandy soil, for them to bask in. We should keep the common Dorking, which you may obtain through any London poulterer. Thanks for the recipes, which shall appear in The Domestic Economist as you wish.

Sprinkling Dung with Sulphuric Acid (*Peregrinus*).—This would check the escape of the ammonia, and render your manure more valuable; but would it not weaken the heating—that is, the fermenting—of the dung? It is worthy of a trial. Mix twice the weight of water with the acid.

Nutt's Celery (*C. K. Sivewright*).—You may obtain seed of this from its raiser, Mr. Nutt, near St. John's Church Park, Sheffield.

Best Garden Fork (*W. Bone*).—Any blacksmith will make you one, from our drawing and description, at p. 289 of vol. i. The best *Spade* (Lyndon's) you can obtain of almost any ironmonger.

Storing Carrots, &c. (*B. M. J.*).—Cut off so much of the top that no trace remains of the ring round the centre, where the leaves grew. Do not apply *liquid manure* to your spinach, &c., until they begin to grow in the spring. The reference to *Brussels sprouts* in vol. ii., should be to p. 347. Liquid manure may be applied to this vegetable, advantageously, in the autumn and spring, when it is in a growing state. You will find your questions answered at p. 136 of this volume.

Crossing Dahlias (*T. O.*).—We do not think there is much chance of getting true crosses from dahlias, owing to the difficulty of performing the operation. Dahlias are not double flowers in the same sense as we say a double rose—that is, by the conversion of the stamens into petals; a double dahlia is a compound flower, each floret or division being a single flower in itself, having its own system of stamens and pistils. If the flowers of a single hyacinth were collected into one head on the top of the flower scape, or stalk, we should have as much reason to call that head a double flower as we now have for calling the dahlia double; and if we had to cross hyacinth flowers, formed into one head like a dahlia, we should first have to pull out some of the florets, or single flowers, in order that we might have room to extract the anthers from the rest. Now, that is just the way to prepare a dahlia flower for crossing, with this difficulty, that the florets, in a dahlia flower, are a great deal smaller than those of a hyacinth in the supposed flower, and, therefore, very few of the florets could be left in the dahlia flower to operate upon; the operation consists of slitting up each floret with a pin, in order to cut out the anthers before they are ripe. Whether the florets in the centre of a flower, or those round the outside, should be kept for seeds, it is difficult to say, in the absence of any clue to an explanation of the cause why the centre florets are altered to the form of the outside ones; but, judging from analogy, we should say, that the florets situated half-way between the centre and circumference were the best to save seeds from, whether they were crossed or not.

Hyacinths (*G. Jones*).—It is fully too late now to put in hyacinths, but they will do, if you put them in moss; let the bud be just free above the moss.

Sowing Pines and Cedars (*Chudleigh Tom*).—All the pinuses and cedars are increased from seeds. Sow them, any time in March, in shallow seed-pans, or pots, with an inch or two of drainage. Use friable loam only, and give hardly any water till the seedlings are three or four days old. A dry, warm frame, without bottom-heat, is the safest place for the seed-pans, and if the seeds are merely covered it will be enough. As soon as the seedlings are firm enough to handle, transplant them into small pots, singly, and keep them close for the first ten days; after that, cold frame culture will do for them.

Queen of the Prairies (*Rosa*).—Your question was answered at p. 192.

Topping Spruce Firs (*W. H. G.*).—If the tops of these are cut off, because they are too overshadowing, they will live, but we do not think they will again form leaders. We have seen them so topped in plantations, where they had been planted to nurse other trees, but never saw a fresh leader produced. We should cut them, as you propose, and lay something over the wound, to keep out the wet.

Cestrum Aurantiacum (*Verax*).—This plant about which you inquire is one of the prettiest of a family, the species and varieties of which are not greatly distinguished for their beauty and elegance. It is a small evergreen shrub, with yellow flowers, introduced some years ago from Guatemala; easily cultivated in peat and loam, and easily propagated by cuttings in spring and summer. We should be doubtful of your plant succeeding if it has suffered from frost, or even of your growing it to great perfection in your greenhouse, unless you can give it a warm corner. As its leaves have all fallen, let it rest, and give it little or no water, until by-and-by you can set it in a cucumber frame, and then, as the doctors say, you *will kill or cure*. Treat it then for your greenhouse, as was lately advised in the case of Justicia speciosa, &c. *Lonicera japonica* is generally propagated by cuttings under a hand-light. The little shoots that grow out from the older stems in April and May strike very readily. It is useful for scenting a cool greenhouse, during summer and autumn; but it will grow freely against a wall, fence, or pillar, in rich, light soil, and is nearly as hardy as our common woodbine; and next to it is, perhaps, the best of the honeysuckles.

Plumbago Larpentæ (*Ibid*).—This should be grown in poor soil, with a portion of lime rubbish. This plant was, perhaps, too much praised, and then too much censured. Propagated by cuttings, any time during spring and autumn, either under a bell-glass or a hand light.

Yellow Persian Rose (*Ibid*).—Shorten its main shoots, but do not spur them back to an eye, unless where you wish to obtain fresh shoots for another year.

Hoare's Vine Pillars (*H. Sandford*).—These are not at home everywhere; you are too far north at Rotherham. If you will experiment on vines, stick to a south aspect, and make your border of very light soil, mixed with porous materials, and not deeper than fifteen inches. Apply what extra strength is necessary by means of top dressing.

Bush Fruit on Borders (*Ibid*).—We own that, unless care is taken, the bush fruit and espaliers would indeed shade the wall trees. A dwarfing system must be practised, based on root limitation, of which more in due time.

Espaliers (*T. W. A.*).—Your gooseberries and currants should be about four feet apart, not less. You do not name your trees. Some will do as bushes or pyramids, others would be better on a table trellis. You had better correspond with us again, and describe your wants with more accuracy. At any rate, keep your espaliers below six feet. Your pears should be on quince stocks, and your apples on the Paradise, or otherwise much limited at the root. We need hardly say, that Mr. Rivers, of Sawbridgeworth, excels, as a nurseryman, in his knowledge of these things.

Killing Worms (*A Regular Subscriber*).—Corrosive sublimate, as mentioned by us at p. 179, may be employed on gravel walks without hurting the box-edging.

Mills on the Cucumber (*A Beginner*).—It is published by Messrs. W. S. Orr & Co., Amen-Corner, Paternoster-Row.

Cyclamen Persicum (*J. H.*).—This, which has lost its leaves which it had when you bought it two months ago, received a check on being placed in your window; but if the roots are good, keep the soil moist, and it will soon recover as the season advances.

Covering for Pit-bottoms (*A Constant Reader*).—See one of our editorials to-day. Water-proofed calico will do for your frame, to protect radishes. You will find a recipe for the water-proofing at p. 123 of vol. ii. Why do you not buy our Indexes—you can have them for both volumes for twopence.

Work on Agriculture (*Alpha*).—Either Stephens' "Book of the Farm," or Morton's "Cyclopædia of Agriculture," now publishing in half-a-crown parts, will suit your friend.

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WEEKLY CALENDAR.

M D	W D	JAN. 31—FEB. 6, 1850.	Weather near London.			Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
31	TH	Hilary Term ends. Song Thrush heard.	T. 47°—22°.	W.	Rain.	43 a. 7	45 a. 4	9 30	18	13 45	31
1	F	Chaffinch heard.	T. 44°—35°.	S.W.	Rain.	41	47	10 a. 43	19	13 54	32
2	S	PURIFICATION. CANDLEMAS DAY.	T. 49°—42°.	S.W.	Rain.	40	49	11 54	20	14 1	33
3	SUN	SEXAGESIMA S. Blase. Brent Goose goes.	T. 50°—44°.	S.W.	Rain.	38	50	morn.	21	14 8	34
4	M	Goosander goes.	T. 52°—37°.	S.W.	Fine.	37	52	1 2	☾	14 14	35
5	T	Agatha. Pin-tailed Duck goes.	T. 52°—40°.	W.	Fine.	35	54	2 6	23	14 19	36
6	W	Golden Plover goes.	T. 45°—41°.	S.W.	Fine.	33	56	3 8	24	14 23	37

CANDLEMAS DAY was evidently so named from the number of lights formerly burnt in our churches upon the occasion; and a proclamation of Henry VIII. announces, "that the bearing of candels on this day is done in memory of Christ, the spiritual Light." In those days of superstition, each person who had borne a candle, and had it blessed at this festival, carefully preserved it, and re-lighted it during any time of danger, firmly believing that neither evil spirit, storm, or other power, could injure him whose candle was burning! On the eve of this day, by our ancestors, all the evergreen household decorations were removed, and others placed as their successors. Herrick, one of the most harmonious poets of the 16th century, says, of this regarnishing:—

Down with the rosemary and bays,
Down with the mistletoe;
Instead of holly, now upraise
The greener box for show.

The holly hitherto did sway;
Let box now domineer,
Until the dancing Easter day
Or Easter's eve appear.

Then youthful box, which now hath grace
Your houses to renew,
Grown old, surrender must his place
Unto the crisped yew.

When yew is out, then birch comes in,
And many flowers beside;
Both of a fresh and fragrant kin,
To honour Whitsuntide.

Green rushes then, and sweetest bents,
With cooler oaken boughs,
Come in for comely ornaments,
To re-adorn the house.

ST. BLASE.—Why this good bishop of Sebastia should have been selected by those of our Christian ancestors that were woollen manufacturers, to be their patron, is lost in the darkness of the unrecorded portion of our history. There seems to be no reason for supposing that he invented the comb with which he was tortured, for woolcombing appears to have been practised by the Britons when Cæsar first invaded our shores. Be this as it may, St. Blase is the patron of all artificers connected with the woollen trade, and a septennial jubilee is held in the clothiery districts of Yorkshire, professedly in his honour, but really for the sake of revelry. Jason, the captor of the Golden Fleece, Bishop Blase, shepherdesses, &c., and innumerable devices worked in wool, form parts of the procession. The value of our woollen trade may be estimated from the facts that, in 1848, more than sixty-nine millions of pounds of wool were imported into England; and the value of our woollen manufactured goods, exported the same year, was nearly five and three-quarters millions of sterling pounds.

METEOROLOGY OF THE WEEK.—The average highest temperature of these seven days, from observations made during the last twenty-three years, is 43.8°, and the average lowest temperature, 31.7°. During the same years, 93 days were fine, and on 63 days rain fell. The highest temperature observed was 56°, on the 2nd of February, 1835; and the lowest, 14°, on the 3rd, in 1841.

RANGE OF BAROMETER—RAIN IN INCHES.

JAN.		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
31	B.	30.190	30.124	29.931	29.811	29.601	29.965	29.624	29.305	30.242
		30.165	29.930	29.834	29.799	29.131	29.804	29.593	29.232	30.131
	R.	0.12	0.12	0.07	0.15	—	—	—	0.12	0.01
FEB. 1	B.	30.346	30.130	29.902	30.018	29.842	29.834	29.750	30.071	30.294
		30.268	30.100	29.833	29.900	29.747	29.830	29.601	29.763	30.230
	R.	—	—	0.16	—	—	0.52	—	0.13	0.02
2	B.	30.093	30.241	29.742	29.596	29.984	29.932	29.813	30.315	30.348
		29.931	30.059	29.612	29.469	29.862	29.614	29.785	30.153	30.286
	R.	—	0.02	0.20	0.32	—	—	0.02	—	0.04
3	B.	30.020	30.409	29.517	29.943	29.972	29.894	30.052	30.263	30.408
		29.977	30.377	29.120	29.914	29.873	29.821	29.821	30.241	30.359
	R.	—	—	0.20	—	0.10	0.01	—	0.01	0.01
4	B.	29.802	30.439	29.757	29.697	30.200	30.053	39.151	30.167	30.456
		29.670	30.351	29.348	29.427	30.163	29.956	30.119	30.111	30.424
	R.	—	—	0.16	0.18	—	0.31	—	0.03	—
5	B.	29.722	30.267	29.854	29.495	30.017	29.833	30.141	30.100	30.454
		29.688	30.177	29.798	29.403	29.871	29.744	29.976	30.059	30.428
	R.	—	—	0.08	—	—	—	0.02	0.23	—
6	B.	29.661	30.109	29.868	29.560	29.940	29.988	29.683	30.139	30.412
		29.609	29.892	29.736	29.459	29.851	29.937	29.565	30.075	30.288
	R.	—	0.06	0.09	0.02	—	—	0.02	0.01	—

INSECTS.—A few years since we were annoyed by finding many of the blossoms of our raspberries lying on the ground, without any apparent cause for their fall. There were no little feet-prints on the freshly-raked soil, so the bullfinches and the tomtits were condemned as the ravagers. However, upon turning to Kirby and Spence's "Entomology," we found this notice—"When in flower, the footstalks of the raspberry's blossoms are occasionally eaten through by a minute beetle, *Byturus tomentosus*, which I once saw prove fatal to a whole crop." We immediately searched, and found that this, too, was our enemy. It may be called the Raspberry-stalk beetle, and is named, by some naturalists, *Dermestes tomentosus*. Our cut represents it both of its natural size and magnified. The whole of the upper part of the body is a dull brown colour, dotted over with minute black spots, and covered thickly with a short down. The antennæ, feet, and beneath the body, are dull yellowish-red, and the eyes black. It may be observed in the blossoms of the whitethorn, and umbelliferous plants, during May and June. When the raspberry-canes are attacked, burning green garden refuse to windward of them, so as to envelope them for some time thickly in smoke, might put the plunderers to flight.

NOTWITHSTANDING the very full information we gave at page 22 of our second volume, relative to the cultivation of the mistletoe, and the additional particulars that information elicited from a correspondent—page 166 of the same volume—we continue to receive letters asking questions, the answers to which we shall endeavour to embody in one connected reply. One letter on the subject, from the Rev. Hugh Nanney, of Causby Rectory, Lincolnshire, we will insert here, because it not only contains the information required by our correspondent, but some notes in natural history worthy of preservation

"In answer to your correspondent, 'Allendale,' I beg to inform him, that there is a very fine specimen of the 'mistletoe' growing on an apple-tree in the gardens at Bradley Hall, not many miles down the Tyne, below the mouth of the Allen. So much as to its growing in Northumberland. But how to propagate it, I am at a loss, as a friend of mine, the late curate of Ryton, not far from Bradley Hall, has tried to engraft the seed on the apple, oak, and thorn, but without success.

"As I know you like facts connected with natural history, as well as with gardening, I would wish to mention, that a very fine specimen of the yellow-breasted martin was killed near the manor-house, in this parish, in a hole, adjoining the moat which surrounds the house. There were fourteen fine fresh eels in the martin's lair, of about half-a-pound each. The moat was frozen at the time, and had been for a fortnight."

This will satisfy another correspondent (*J. M.*) that the mistletoe will grow even further north than Liverpool.

We think we can explain why "the curate of Ryton," and some of our correspondents, have failed to rear the mistletoe from seeds; for there is, certainly, no more care or art required to establish it on an apple-tree, and on many other trees, than there is in growing a grain of wheat, or of barley; and when it is once established, it is as difficult to eradicate as a dock, or a coltsfoot. We have known old plants of the mistletoe cut down close, and even the bark of the branch on which it grew pared off round the bottom of the parasite, and yet a multitude of young plants sprung up afterwards from the wounded parts.

The usual way in which the mistletoe is propagated is by the agency of birds, which feed greedily on the berries during the winter and early in the spring; who, after satisfying their appetite, resort to neighbouring trees, to wipe their beaks against the branches, to get rid of the slimy matter which envelopes the seeds, and which sticks to the outside of their bills, with a portion of the seeds also. The white viscous matter of the mistletoe-berry glues the seed to the bark, and if this is smooth, and not too hard, the seeds will germinate, and root into it the following spring; that is, supposing the pollen to have reached the flower of the mistletoe at the proper time, which is not always the case, as the male and female organs of the mistletoe are borne in different flowers on the same plant, like those of the melon and cucumber; and sometimes a plant produces but one of the sexes in all its blossoms. When this is the case, and no pollen reaches the stigma, although the berries are formed, they are destitute of the vital germ, and, of course, will not vegetate: hence the real cause of many of the failures of which we hear.

Like many other seeds, some of those of the mistletoe, we have no doubt, pass through the gizzards of birds without losing their vitality, and are thus sown, in the dung of the birds, in cracks and fissures in the bark of trees. We must not, however, countenance the old notion, that it was *necessary* for some kinds of seeds to pass through the stomach of some animal before they could be made to germinate; but, from our knowledge of the way and time that these seeds are sown by the birds, we may reasonably conclude that we shall be right if we sow them artificially any time from Christmas to the middle or end of April; and, in general, they germinate before the end of the following May. The north side of a stout branch, with a soft, smooth bark, is, probably, the best situation to place the seeds; and if the outer bark is just cut through with a sharp knife, to afford a lodgment for the seed, the viscous matter which adheres to them will retain them in their position. The first appearance of growth is indicated by one or two root-like processes, resembling the sucker of a house-fly, but larger; and for the first half-dozen years the plants grow very slowly.

The name, mistletoe, is not derived from the Missel thrush, as has been asserted by some writers, but the name of this bird is derived from feeding on its berries. The Saxon name of the plant was *Mistelta*, and ours is the same in an English dress.

WE have now arrived at the consideration of the science applicable to the ROOTS of plants.

The root is present in all cultivated plants. The truffle, which, however, can scarcely be considered as belonging to cultivated vegetables, having hitherto defied all attempts to subjugate it, may be considered as nothing but root.*

A root is annual, biennial, or perennial. In the two former instances, if the individuals to which they belong be allowed to perfect their seed, no care can protract their existence beyond the ensuing winter, however genial the temperature, &c., in which they are made to vegetate: but if the ripening of seed be prevented, it is undetermined how long they may, in most instances, be sustained in life. I have known mignonette continued in healthy vegetation for four years with this precaution.

The quantity of the root we have always observed to increase with the poverty of the soil in which it is growing. Duhamel found the roots of some young oaks in a poor soil to be nearly four feet long, though the stem was not more than six inches. The cause of this is evident: the nourishment which is required for the growth of the plant can only be obtained by an increased, widely-extending surface of root, and, to form this, more sap is often required than the plant, owing to the poverty of the earth, can obtain for itself; in that case a soil is sterile, for the plant must evidently perish. Every one may have noticed this familiarly instanced in Poa annua growing on a gravel walk—its stem minute, its root a mass of widely-extending fibres.

A root always proceeds in that direction where food is most abundant, and, from a knowledge of this fact, we should be circumspect in our mode of applying manures, according to the crop and object we have in view. The soil in our own garden being shallow, never produced a carrot or a parsnip of any size, but almost every root consisted of numerous forks thickly coated with fibres: digging two spades deep produced no material advantage, the gardener applying as usual manure to the surface; but, by trenching as before, and turning in a small quantity of manure at *the bottom*, the roots always spindled well, grew clean, and had few lateral fibres. For late crops of peas, which mildew chiefly from a deficiency of moisture to the root, it is an object to keep their radiculæ near the surface, for the sake of the light depositions of moisture incident to their season of growth; hence it will always be found of benefit to cover the earth over the rows with a little well rotted dung, and to point it lightly in.

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* In Prussia and elsewhere, it is said the gardeners succeed in cultivating this subterraneous fungus, but their mode of treatment is a secret, and modes suggested by others are rarely successful.

It may be accepted as an universal maxim, that whatever causes an excessive development of root prevents the production of seed; and *vice versâ*, the production of seed, especially in tuberous-rooted plants, reduces the amount of root developed. Thus, frequent transplanting the young plants of the lettuce, brocoli, and cauliflower causes the production of numerous fibrous roots, and is found effective in preventing the mature plants advancing early to seed. The early varieties of the potato do not naturally produce seed; but if their tubers are removed as soon as they are formed, these early varieties bear seed as freely as the latter kinds, a fact suggesting many experiments to the cultivators of shy-blooming tuberous-rooted flowers. Again, if the blossoms of these later varieties are plucked off as they appear, the weight of tubers produced will be very materially increased.

THE FRUIT-GARDEN.

VINES IN POTS.—Repeated applications having been made for information concerning vine forcing in pots, we now take up the subject, and, in doing so, it will be requisite to defer entering into the whole course of culture necessary as a preliminary proceeding at the present moment, on account of the period we write for, knowing that many persons, who have established plants by them, are anxious for a little practical advice. In a short period, we hope to resume the subject, and we shall trace the culture of the potted vine from the "eye," or cutting, up to the forcing period.

PREPARING PLANTS.—We may now suppose that the forcer is in possession of good strong fruiting plants, and that they have been wintered securely, that is to say, have been kept tolerably dry, and not subjected to very severe weather; also, that they had been pruned in the autumn. Before introducing them to heat, it is well to dress their shoots after the manner of those in the hothouse up the rafters; a plan which, although not indispensable, is of some benefit, as tending to prevent the hatching of any insect eggs which may be deposited on their shoots, for such is almost sure to be the case. The mixture generally used is made by beating up soft soap in warm water, at the rate of about five ounces to the gallon, and then adding at least one pound of flowers of sulphur. It is well, also, to thicken it by some means to the consistence of thick paint, and to this end we use clay. As much clay, then, may be added as will accomplish this, and the whole being thoroughly blended, may be applied with a painter's brush, plastering it all over the wood, and into every chink or crevice. This done, we recommend that each end, where the pruning knife has operated, be daubed with thick paint, or white lead; for strong young vines are apt to bleed on being introduced to heat, and this effectually prevents it. Care, however, must be taken that the wounds are perfectly dry when the paint is applied, or it will not adhere perfectly.

SOIL.—The next point is to examine carefully the state of the soil, both at the surface of the pot, and at its bottom. As to the surface, some portion will be found worn out, of a loose or powdery character, and containing no fibres. All such should be removed with a pointed stick, loosening and emptying out all containing no roots, and replacing it with a powerful compost. If much is removed, and there is consequently room for much compost, we would advise the use of lumps of turf, which should have been cut a few months previously, and which had been dried in some shed; this should be in pieces as large as a middle-sized potato, and much of the loose soil, being dry, should be shaken out. With this, a finer compost may be used, composed of sound loam and good rotten manure, adding some small charcoal, and some fine bone dust. The manure should be good. Cow-dung, mellowed by age, or old night-soil, will be found highly useful. In filling up the pots, the turfy lumps should be placed first all over the surface, and the finer compost shaken over and amongst it, taking care that at least two inches of the finer compost surmounts the turfy lumps. This is a necessary course in all top-dressing affairs, where porous turf is thus used; the finer compost acts as a regulator or controller of the moisture of the turfy material, which, without this, is apt to become suddenly dry, and to act fitfully. And now the bottom of the pot must be examined, in order to see if no obstructions have taken place in the drainage. We should, however, have advised this to be done before adding the fresh top-dressing, as turning the pot or tub on one side for this purpose would be apt to disarrange the top-dressing, which, once fixed and pressed down, should remain without disturbance. Any lodgment in the holes of the pots should be picked out carefully with a spike-nail, or sharp-pointed stick, and if obstructions should be suspected beyond the reach of this procedure, the ball must be turned out, and any extraneous matter from worms, or other sources, carefully removed, taking care to adjust the crocks, or other drainage materials, at the same time, in order to facilitate the free discharge of water, *without which it will be absolutely impossible to obtain success.* If the turning out can be avoided, all the better; for one of the worst faults attending this is the difficulty of placing the ball in precisely the same position again, which is very necessary, for, in the event of a change in position, there are sure to be many open cavities, down which the water will be too apt to escape in subsequent waterings, to the desertion of the ball, through which it should be made to percolate in an even way. An old practitioner—one used to the potting bench—can readily replace a ball in its old position; it is, nevertheless, a rule-of-thumb affair, only acquired by long practice.

COMMENCING FORCING.—All these things being accomplished, the plant is now ready to be introduced to a warmer climate; and here we must pause to ascertain what situations are available, and, also, what conditions are necessary.

BOTTOM-HEAT.—Whatever situation may be chosen for the vines ultimately, it will be of eminent service, if, in their earlier stages at least, they can have the advantage of a moderate bottom-heat. We are quite aware that not every one can comply with the conditions here laid down; still, in offering advice, we do not deem it a duty to compromise principles of importance, but rather to point to what we conceive is the highest course of culture. Bottom-heat is now beginning to be considered a valuable adjunct even to outside borders, where the roots have free liberty to range for food: how much more so, then, for vines in pots, where, from the very limited supply of food, every means must be taken to obtain an active root, and to keep it so: and where a sudden check is almost sure to prove fatal to a really successful issue? It is, however, not so much in any precise amount of bottom-heat alone that reliance must be placed, but in the relation that amount bears to the average atmospheric heat.

Light.—The amount of light, as we have before observed, is the guiding star of this and all other forcing matters, where elaborative processes have to be carried out; such things as sea-kale, asparagus, &c., forming an exception: here, mere development of buds already organised is sought. Such being the case, the amount of bottom-heat which might be recommended for May or June would by no means be the most eligible for December or January. As a guide to the amateur, we would, then, suggest that three distinct periods might be considered as comprising the history of vine-forcing in pots—from the commencement of the process to the complete ripening of the fruit. These we would thus divide:—

First.—From the commencement to the blossom shewing.

Second.—From the latter to the beginning of the stoning process.

Third.—From the stoning to the ripening.

We find that we have been drawn rather too deep into the subject for a single paper; we must cease pursuing abstract principles, and come to details.

Temperature.—During the whole of the forcing, it is our firm persuasion that it would be well for the root to be situated in a medium, three or four degrees warmer than the average atmospheric heat. Vines in pots, to be introduced now, should, during the first period, have a bottom-heat of about 70°, whilst during this stage, the atmospheric heat need not by any means exceed 60°—indeed 55°, until the leaf begins to unfold, would be better. It will be seen here that the object is to get the root into action somewhat before the top, in order that the buds may develope with freedom, and escape what is termed "blindness," which, although not caused by the want of such precautions, is much aggravated by improper treatment, or by neglect.

By the time that the bunch is to be seen, the tactics must, in some degree, be changed. An atmospheric temperature from 65° to 70° must be secured by day, falling to about 55° or 58° by night; the bottom-heat, also, if possible, advanced in a like ratio.

As the season advances, and the second period begins to merge into the third, much atmospheric advance by sunshine may be allowed. A thermometer rising to 85° in the afternoon, on bright days, will be beneficial.

Atmospheric Moisture must, of course, abound during the first period; and until the vines break, little ventilation, unless to keep down heat, will be requisite. Afterwards, however, a free, yet cautious ventilation much benefits them: rendering the whole plant more robust.

Training.—Whether plunged, or, as is oftentimes the case, set over a back flue, or on the kerb-stones of pine or other pits, care must be taken to train them carefully up, in order to present as much perfect foliage to the light as possible. Some "stop" one joint beyond the fruit, as with rafter vines; we think, however, that two or three joints will be found better. After this stopping, the secondary shoots should be allowed to range a little; never stopping or disbudding all at once, but always keeping some point or points growing: thus will fresh fibres be constantly kept a-going—a matter of some importance.

Watering.—This is a most material item in pot-culture; so much so, that injudicious watering will soon ruin the crop. Presuming that the pots are thoroughly drained, they will take water liberally; especially if unplunged, and over a warm flue. When really getting dry, enough water should be given to moisten the ball entirely through; and we advise the constant use of liquid-manure, from the moment they are out of blossom: using it weak, and perfectly clear. A brewing of soot-water in one vessel, and good Peruvian guano in another, will furnish a capital liquor; the guano at the rate of two ounces to a gallon, adding a gallon of soot-water to a gallon of the guano-water. It should always be given of a temperature quite equal to the average temperature of the house. When plunged, the pots will not require above half as much water. We will return to pot-culture when we get an opportunity.

R. Errington.

THE FLOWER-GARDEN.

Timely Hints upon Digging Hardy Herbaceous Flower-beds.—The time is now near at hand when most persons who have gardens will be very busy in this way, whether the plants are in beds upon a lawn, or in straight-line borders by the side of principal walks, or dotted about in the front of plantations. No matter where they are planted, such flowers are very beautiful, if properly treated, and nicely arranged, according to their various heights and colours. But they will not all endure the same treatment; many of them do best when not disturbed at the root for many years; such as the *Veratrums, Delphiniums, Cimicifugas, Actæas, perennial Lathyruses, Arobuses, Pæonias*, and many others; on the other hand, very many require judicious dividing, and regulating of their roots, yearly, to keep them up to the mark of perfection. Among such are the *Monardas, Phlox crassifolia, P. stolonifera, P. procumbens, Prunellas, Diclytras*, and *Sedums*. In fact, nearly all the upright-growing *Phloxes* like dividing, and a new situation about every three years, to keep them growing in perfection; and the same is the case with many other kinds of hardy herbaceous plants. But then these, and the *Phloxes*, require a good top-dressing of leaf-mould and loam, equal parts, instead of the spade, among their roots. At the end of three years, then, take them up, divide them, and give them a new situation. But, as I said before, some of them, to do well, should dot be root-injured, or moved, for years; whilst others spread themselves over a wide space of surface in one year, particularly if the plant is doing well.

Now, when fine open weather comes in February, the master, or lady, of a small establishment wants the plantation dressed off very neatly, in which there are some very choice hardy herbaceous plants, but there are *no labels* to any of them. The groom is called, who professes to know everything. He confesses his very great fondness for gardening; but, to every-one else, declares that he hates it above all things! He goes to work, with the spade, among these beautiful flowers, and where he sees a plant that is grown, as he considers, too wide, he chops it all round with the spade, leaves a handsome spot in the middle, and well-buries all the side-pieces; comes next to a beautiful bunch of Tiger-lilies: in goes the spade, right through the middle of them; then, a nice bunch of *Pulmonaria virginica*, or some other such plant—that dies down below the surface of the borders—he spade-prunes these, too; and so on, in this way, the borders are dressed off, made smooth and nice to the eye; but, when the time comes for the choice flowers to appear, then are heard such complaints as these:—"Why I miss such and such a flower; yes, and that beautiful *Pulmonaria* is gone, that has been there for years!"

Again, many amateurs call in some very accomplished jobbing gardener, who, ask him what you will, is ready with an answer. He goes to work, with no more knowledge than the groom. He rallies away at the work, and seems to do a great deal of it in a day; and, consequently, gets a name for being a famous workman. He chops round the gross-growing plants, and buries the sides, just as the groom did; and says he will stop their vigour! Yes, and so he will in truth, but in a great many he stops it for ever. Well, this is all good for trade, as many persons say; and the amateurs and others must make interest with their friends for more, or buy, if they will have their choice herbaceous plants again to fill up their borders.

Now, if every one of these hardy herbaceous plants were *labelled*, not even the groom or gardener, if disinterested, could make any mistake in dressing off the borders; and the amateur would know where to put his hand upon any particular favourite at any time, whether its stems had died down, or whether it was in full bloom. My plan is always to keep every plant labelled, whether in beds on the lawn, or dotted in the front ground of plantations; and a very interesting appearance the labels have in the winter months, when the beds, &c., are all made clean and neat. I always make it a rule, at cutting-down time, to see that the label is legible and good. If it is not, I either have with me a quantity of smaller labels—that is, if I am in a hurry, or have not a sufficient number of proper labels made for the purpose. I then place to every plant that requires one a smaller label, for the present, until I can attend to the proper-sized label that I use. My labels are made out of any pieces of deal boards that will split up nicely, in lengths from nine inches to a foot, and from one inch to an inch-and-a-half in breadth, made smooth with a sharp knife, neatly pointed, and rounded at the top; and, as I want them for use, a very little white paint is rubbed on each with the finger, and written on, while the paint is wet, with a common cedar lead-pencil. I inscribe the generic and specific name of each plant plain enough for any one to read it. This I frequently do in wet weather, by having a list of the plants that need new labels.

I am not wishing to adopt a Linnæan or Jussieuian system, in either large or small private gardens, but a little touching upon the latter would be very nice in many cases. Thus, I like to see good beds of the tall *Aconitums* together; *Delphiniums, Phloxes* (of which many of the early-flowering kinds may be caused to flower at the same time the later ones do, by once nipping out the tops of them), and beds of *Pæonies* together; *Potentillas* also look well in beds together.

In arranging, I always aim at having the tallest at the back, or centres; and colours, or sorts, at equal distances from each other, and blended, so as to form a handsome whole. I usually grow the plants 2 feet 6 inches at the least from each other; and, in some instances, larger-growing kinds I place still wider apart. If I should happen to make an error in the height or colour of my arrangement, I make a note of it, to be altered for the next season; or, if anything new should come to hand that would be an improvement, I make a memorandum for it to be attended to at its proper time.

By attending to my hardy herbaceous favourites in this methodical manner, I not only save their lives, but I flower them well. How vexed I should be to see the spade go through a nice bunch of that pretty little plant, *Scilla præcox!* But, in order to be more careful over these little choice bulbs, I always keep them in pots, and plunge pot and all in the ground where I wish the plant to stand to flower, giving them a shift every two years, at which time I divide them, if I find it needful. And how sorry I should be to see all the roots chopped round of a fine plant of *Dodecatheon giganta*, that I was looking forward to see have eight or ten fine flower-stems next May! How could such a plant be expected to be so productive after such rough treatment? The plant might live, certainly; and, should it not get served so again, it might dwindle on for some years; but the best way to deal with it, after it has been so badly served, would be to take it up and divide it, and plant it out in some new and rather cool situation.

Another reason against chopping round the patches of hardy herbaceous plants, so as to leave the centre-bit, which very often dwindles away after such barbarous treatment, is, that it often, I may say always, happens that the outside of each patch is the best and the only part that would flower the ensuing year, if left alone. This is evident in such plants as *Campanula persicifolia*, and its many varieties; *Prunella Pennsylvanica*, and many others.

When I am in the act of dressing off my borders, and I come to one of these kind of plants, if the best part of the patch happens to be just where I wish the future plant to stand, or so nearly so as not to deform my arrangement, I then leave it, taking all other parts away. But, if it should not be so, I take up the whole, and work up the spot *thoroughly*, and a spadeful or two of fresh mould is always worked in, as I keep a wheelbarrow of good, suitable soil by me at this work. When all is ready, I select one of the best outside pieces to form my new plant, or specimen; and, in so doing, I very often exchange one plant for another of the same height and colour, when I fancy the plant appears tired of its present situation. This change, and half a barrow of leaf-mould and turfy loam, sets all to right again.

T. WEAVER,
Gardener to the Warden of Winchester College.

GREENHOUSE AND WINDOW GARDENING.

"WINDOW gardening, indeed! I verily believe some of these writers, in THE COTTAGE GARDENER, are in league with the nurserymen who have plants to sell. They first make us so fond of flowers that we cannot do without them; and then they can leave us in such weather as we have had of late, to shift, and think, for ourselves, with, perhaps, drily referring us to specific directions, given a month or two ago; as if these were the days when people had time to look and ponder over old numbers." A friend of ours was lately expatiating on the beautiful object that Johnny Frost had painted so gracefully and cheaply on his window frame. He could scarcely sip his steaming coffee for looking at them. "There," said he, "are romantic landscapes, shelving rocks, embossomed recesses, towering trees, cascades, and waterfalls; portions of cities, temples, columns—all the more gorgeous, because seemingly in confusion and ruins." He knew not where he would have got to in his careering enthusiasm, had he not, in rising from the table—the better to view their charms—come in contact with frosted leaves of geraniums and fuchsias, with their soil as hard as small burnt brick, which, fortunately, brought him from romance to reality, as the exclamation, "*well to be sure*," burst from his lips—for great favourites were they, as the mementos of one far, far away—only to be followed in the next breath with something like blaming the writers in The Cottage Gardener, for not telling him the night before to guard against such a visitation. Ah! how much easier it is to throw blame from our own, upon other people's shoulders, than to act out according even to our own knowledge of what is right and wrong. Near the friend alluded to, in a snug, roomy cottage, resides *Mrs. Think-in-Time*. In a cosy parlour, with a large window having a good aspect, stands a neat painted table, furnished with strong rollers at its feet, for moving it easily, close to the window during the day, and into the middle of the room, or even nearer to the fire-place, on a frosty evening. That table is filled with beautiful plants—several now in bloom—and the lady has only been a gardener somewhat less than a twelvemonth. At each of the four corners of the table is a hole sheathed with thin metal, and these holes are for holding the four ends of two flat-arched iron-hoops, over which a calico covering is thrown in frosty nights, and also during the time the room is getting a *redding* up in the morning. This cloth and these hoops also answer admirably for fumigating plants out of doors; which keeps the stinking stuff at a distance from the dwelling-house. On that table are to be seen hyacinths and narcissuses, brought from a one-light hotbed; cinerarias in bloom, from seeds sown in May; Chinese primroses, a yellow-flowered cytisus, and nice stocky geraniums, stopped in the end of October, and soon to be transferred from four-inch to six-inch pots, in which they will be bloomed; while, in a turf-pit, are a reserve of many things, to succeed them during the summer; not one of which are injured, though covered up the best part of a fortnight. *Mrs. Think-in-Time* manages all this, not without care and anxiety it is true, and asking for advice at every suitable person she meets—but chiefly because she is neither above nor below to acting out the principle, propounded to me by the late Mr. Stewart, of Valley-field—a principle which too often I have neglected, but never forgotten. "Attention to little things constitutes the gardener."

There are several aspects connected with window-gardening and its results that at once present themselves for consideration, but waiving these for the present, we shall draw attention by doing little more than naming a few little plants, which are not rendered so generally available for this purpose as they ought to be; and the first shall be the

Oxalis tricolor.—The flowers are white and red, rather twisted closely together, but still showing the colour in dull weather, but beautiful when, like most of the family, they expand their beauties to the sunshine. It is generally propagated by offsets from its little bulbs—four or six of the largest of which may be planted in a five or six-inch pot, placed two inches below the surface—and grown in sandy peat and loam. When flowering, give plenty of water; continue it as long as the leaves are green, and then let them remain dry in the pots, or taken out and kept in saucers, out of the way of frost, until they begin to shoot again, when they must be planted. There are many other beautiful species that must be treated in a similar manner; but few of them would do so well for the window, especially in winter; because some of the best, like Boweii, would have no appearance at all, except when the sun shone brightly. The *Oxalis sensitiva*, or, as it is generally called now, the *Biophytum sensitivum*, is an interesting Chinese annual when growing; as its seed-pods, when ripe, spring with the slightest touch, and the pinnated leaves are rather sensitive to the touch.

Lachenalia.—These are all low-growing bulbous plants. The whole family consists of interesting plants, most of which will, under proper treatment, and a little forcing, flower freely during the winter; but may be got into bloom at almost any time, by varying the periods of their resting. Some species, such as *pendula*, and *pendula latifolia*, and *tricolor*, and *tricolor major*, may thus afford a succession of their pretty tubular flowers all the winter. There are many other kinds, of all colours, scarcely exceeding one foot in height. They prefer sandy loam and peat, with rather most of the latter; should receive a sufficiency of water when growing, and be kept dry when in a state of rest. Four bulbs will, in the case of most of them, be sufficient for a six-inch pot; and their racemes of tubular-looking flowers are very interesting, especially at the present dull season. For growth in the window they should be cultivated in cold pits; and, if the leaves are withered early, and the pots turned over on their sides, they should be the first that are potted, and assisted into growth in the autumn. Let the top of the bulb be covered about one inch.

Cyclamen.—The whole of the species of this genus are just cut out for winter flowering in windows, and cool greenhouses. Several of them are quite hardy; but the best for cultivation is the *Persicum*, and its varieties, especially the sweet-scented one. We intended giving a description of the plant, and its mode of seeding; but in glancing at vol. i., we find that has been much abler done by Mr. Beaton. The plant may be considered a bulbous-looking tuber, from the eye or bud of which the dwarf head of flowers and leaves proceed in the growing season. They may be kept anywhere, so that frost does not reach them in winter, and should only be re-watered, and either shifted, or top-dressed, when vegetation commences. The latter mode is often the most successful; and when thus kept in the same spot for several years, the top-dressing should consist chiefly of equal proportions of peat-leaf mould, and rotten cow-dung. As the leaves and flowers, which are on short peduncles, come from the centre of the tuber, it should not be buried, but stand a little elevated above the soil. In a state of rest, though not kept wet, neither should it be allowed to become too dry, or the tuber will become shrivelled, and the produce of flowers and leaves will be weak. In potting them, give plenty of drainage; use equal portions of sandy peat and loam, and a little rough leaf-mould, or dried old cow-dung. In watering, give sparingly around the sides, or rather, at a little distance from the tuber, when fresh potted, not soaking all the soil until the roots have penetrated it. When done flowering, dry off the tubers gradually to the degree alluded to, when the leaves have faded. There is no mode of propagating but by seeds, and these should be sown, as soon as ripe, into small boxes or pans, kept from frost all the winter, and then planted out, in a frame or pit, in April, in light sandy loam and peat, with a substratum of rotten dung, encouraged to grow by watering; abundance of air by removing the glass in fine weather, and taken up and potted in the end of autumn, many of the tubers being large enough to bloom in three or four-inch pots the following winter. R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

Routine Work for February.—As the days become longer, and the sun shines more frequently, the orchids will require rather more heat and moisture. Such plants as *Phaius grandifolius* and *P. Wallichii*, which will now be both growing and flowering, and, as in that state they are thirsty subjects, give them abundance of water. If not already potted, lose no time in performing that operation. *Calanthe veratrifolia* is a plant of similar habit, requiring the same soil; and will, also, now be showing its spikes of lovely white blossoms. This will also require more water. The soil these plants require is a compost of fibrous loam, sandy peat, and leaf-mould, in equal parts. The pots must be well drained, but not to such extent as the *Cattleyas*, *Oncidiums*, and other kindred genera require. As these plants are of the terrestrial class, or plants that grow *on* the ground, they must be potted in the ordinary way, that is, the pots should not be filled with the compost quite up to the brim. About half-an-inch short of that will be the right height. They will then hold more water, and the earth will receive, when watered, a proper quantity of that element to support and encourage the free healthy growth of the plants. The orchids, *generally*, may be potted this month with advantage, as the increased heat and moisture will cause them to begin to grow freely. The method of potting the epiphytes (those growing on trees) we have already described, which, if our readers have followed, they will already have practised to some extent.

Cleansing the Leaves.—The importance of keeping the leaves of all plants clean we have already hinted at, and orchids are no exceptions to the general rule. Now, especially, is a good time to wash the leaves and pseudo-bulbs of these plants. The cultivator will find, on examining them—more especially such plants as *Aerides*, *Saccolabiums*, *Vandas*, *Stanhopeas*, and other plants that are hung up in baskets, or on logs—that the leaves are covered sometimes with a kind of green scum. This is, we suppose, a kind of green fungus, or, perhaps, a minute moss. Now this substance, be it what it may, is very injurious to the plants—stopping up the pores, and preventing the healthy action of their breathing, or taking in and giving out peculiar gases. To be able to perform these functions without hindrance is as necessary to a plant as to an animal. This shows the necessity of keeping the surface of the leaves clear of any impediment to this operation of daily and hourly breathings. In the open air, excepting in or near large towns, the heavy, long-continued showers of rain soften and finally wash off all obstructions; but in hothouses the case is very different; and though the syringing will partially prevent an accumulation of those hindrances to healthy breathing, yet it cannot be used in the orchid-house to a sufficient extent. In truth, the moisture consequent upon the very free use of the syringe, if no other means are used, will help to increase the evil, by producing an atmosphere in which the green parasite will flourish best, and spread the more rapidly. The necessity, then, of cleansing the leaves, we have, we think, made apparent, and it only remains to describe the means. What we do is this, we take down the plant from its high position; if the moss, or peat, whichever it may happen to be growing in, is dry, we give it a good soaking in the cistern, the water of which is at a temperature of 70°. Whilst it is soaking, all dead leaves are carefully removed, and every part of the plant is then thoroughly washed with a sponge. If the leaves are thick and leathery, the sponge is rubbed over them several times with a heavy hand. In fact, it might be called a good scrubbing; being careful, of course, not to injure it. For more tender leaves, we have, very lately, used something else. We observed that the sponge, though used ever so lightly on these tender, thin leaves, injured them slightly. Happening to observe a piece of thick leather, such as soldier's belts are made of, it was taken and wrapped round the end of a small stick, fastening it firmly to it with some small copper wire, leaving half-an-inch of it projecting beyond the stick; it had then the appearance of a brush made of leather. With this instrument the leaves were washed, and it was so soft and pliable that it did not injure the youngest or tenderest leaf, yet effectually washed the dust and dirt off from the leaves. This washing not only clears off the parasites, and any other obstruction, but also destroys insects, particularly the red spider and black thrip, two of the most pernicious enemies to orchids. We have seen the leaves of *Stanhopeas* almost white with the bites, or, may be, the sucking or pumping of the sap out of them, rendering them sickly, and unable to perform their duty of forming fine large bulbs, without which no flowers can be produced. Though we have mentioned that the benefits of cleaning the leaves, either by the sponge or leather brush, are more especially felt by orchids that are hung up near the glass, on account of their being more out of the reach of the syringe, it does not follow that the other plants on the stages, or side platforms, do not require cleansing in the same way occasionally, although they can be more effectually washed with the syringe. Let these be sponged also this month, equally as well as those hanging up. Let every part of the plants be well cleansed—leaves, stems, and pseudo-bulbs. Not only will the plants look better, but they will be greatly benefited in their health. They will show their gratitude for the pains bestowed by a renewed vigour of growth; and the natural consequence will follow;—they will, if properly rested, produce abundance of their beautiful flowers.

Catasetums, *Mormodes*, *Myanthus*, and *Cycnoches* will now be at rest, and should be kept quite dry for a month or six weeks longer. They should be placed on a shelf near the glass, where they may escape the syringe, and have abundance of light, but no sunshine. Examine them frequently, and as soon as any growing buds are perceived, let them be potted immediately, but not before.

Steaming.—As the plants will now begin to grow, apply moisture vigorously, by syringing the pipes and sides of the tanks, to create a genial, moist, growing atmosphere. This will assist them greatly. Wet the walks and paths every morning, and, when the sun shines, in the middle of the day also.

Shading.—Towards the end of the month, the sun will most likely begin to be too powerful in the middle of the day for orchids in the house. Should that be the case, it will be necessary to let the shades down for an hour before noon, and an hour afterwards. The young leaves will be more tender now than afterwards, owing to having grown during the short, dark days that have gone by. Therefore they will require great care to keep them shaded from the bright sunshine that we reasonably hope will come soon. Watch for this weather, and shade accordingly.

CREEPERS IN THE ORCHID-HOUSE.—There are several kinds of creeping or twining plants that do exceedingly well in the orchid-house. *Stephanotis floribunda* is one of the best, if not the *very best*, for this house. *Echites splendens* is another very good one, but, unlike the Stephanotis, it has no scent; but its flowers are as large as an ordinary tea-cup, and of a beautiful shaded rose colour. *Clerodendrum splendens speciosissimum* is also a fine creeper, with large panicles, or bunches, of deep crimson-coloured flowers. This variety is far superior to the original species; the flowers are individually larger, and of a finer colour; the racemes are also larger; and it flowers earlier and more freely. *Lygodium scandens* is a beautiful climbing fern, very suitable for the orchid-house. These four creepers are quite sufficient for a moderate-sized structure, and may be planted now with great propriety. We beg, however, that our readers may not have creepers to such an extent as to shade the orchids below too much. If there are already some creepers in the house, they ought now to be well pruned, and every leaf and branch well washed, to clear them from dust and insects. We had intended finishing our remarks on the *Anæctochilus*, but our space is full, and we are reluctantly compelled to defer it till next week.

FLORISTS' FLOWERS.

THE RANUNCULUS.—It is time to begin to think seriously about planting these truly elegant and beautiful flowers. From the 8th to the 20th of February, accordingly as the weather will permit, is the range of time suitable for such flowers as are intended for exhibition purposes, or to produce the finest flowers. At page 220, No. 20, vol. i., of this work, we describe fully the method of planting the ranunculus. Such of our readers as possess that volume would do well to refer to that place. We may briefly recapitulate the chief points. The soil ought to be moderately dry; draw drills across the beds, two inches deep, and six inches from row to row; plant the roots four inches apart; cover them with some fine sand, as high as the crowns; then level with a rake the soil, and the operation is complete. As some of our readers may wish to add to their stock, we give below an additional list of some of the more rare kinds. They may be had of Messrs. Tyso and Son, Wallingford:—

	s.	d.
Acme: white ground, yellow spotted	4	0
Alice Maud: yellow-edged	5	0
Adolphus: brown-mottled	3	0
Alladices: cream	5	0
Bensonia: white ground, spotted	3	6
Bellosia: white-edged	5	0
Boz: brown ground, edged	4	0
Bravo: brown ground, cream-mottled	7	6
Chimpanzee: white ground, rose-edged	10	6
Dunstan: dark ground, cream-spotted	5	0
Exquisite: brown spotted	5	0
Flaminius: yellow self	5	0
Hercules: dark self	2	0
Jubal: cream ground, dark edged	3	6
Larne: white ground, purple-mottled	5	0
Lotis: brown-mottled	5	0
Marshall: brown ground, cream-edged	3	0
Mary Queen of Scots: white ground, rose-spotted	5	0
Minos: yellow-edged	7	6
Oberlin: white-spotted	3	6
Passe Niobe: dark spotted	3	0
Regina: rose ground, cream-spotted	4	0
Surpriser: white ground, mottled	7	6
Talisman: white ground, purple-edged	10	0
Tippoo Saib: dark self	2	6
Trump: lilac ground, brown-edged	5	0
Victor: dark self	7	6
Zenobia: rose ground, mottled	2	6

No doubt a considerable abatement will be made in the prices, if a considerable number are taken.

T. APPLEBY.

THE KITCHEN-GARDEN.

As soon as the severe weather is broken up, and the soil become workable, many matters will require immediate attention. Early varieties of *beans* and *peas* may at once be sown, to forward for transplanting, in a little warmth or shelter of any kind; and successional sowing also should be made in the open borders, or on the side of sloping banks. The early sown peas, which have been above ground, and stood the severity of the winter, should have the surface of the earth stirred about them on fine days; after which dry dust should be shaken amongst them; and, as they grow on, the north and north-east side of them should be sheltered with spruce fir, or some kind of evergreen boughs or furze; and the earth, at a little distance, drawn up, or formed with a spade into a little sheltering ridge.

CABBAGE AND CAULIFLOWERS.—No time should be lost in sowing a little of some good kind of cabbage and cauliflower, and in filling up all vacancies with strong plants in the autumn-planted quarters, keeping the earth's surface well stirred on all suitable occasions.

HORSERADISH should be trenched out, the best selected, and laid in for the season's consumption; and the strongest of the remaining crowns should be again planted, as the trenching proceeds, by laying them on the side of the bottom of the trench, and having the ground in ridges.

SALSAFY AND SCORZONERA should also be trenched out, and the ground left in ridges to pulverise; the roots now taken up may be stored in sand, or laid in thick together in some spare corner.

WINTER SPINACH should be kept clear of decayed leaves, and small sowings made.

ONIONS.—Make a good preparation for transplanting the autumn-sown onions; also, for planting, where not already done, the underground or *potato onions*, and the small bulbs of the *two-bladed* for early use; the *Spanish* and *Portugal onions* may also now be sown on a little heat in pans, &c., for transplanting in early spring, in order to get large bulbs.

RHUBARB AND SEA-KALE.—Early varieties of rhubarb may be assisted much by temporary sheltering with hand-glasses, boxes, or boughs, &c. A succession of sea-kale should also be covered; and the whole of the crowns not previously covered with dust, ashes, or earth, should at once be attended to, in order to maintain a good colour.

Continue to sow *broad beans* and *peas* in open ground.

RADISHES.—Attend to thinning-out as soon as they are fairly in the seed-leaf, and sift a little dry earth among them. Give plenty of air to them in all favourable weather, by taking the glass lights, or other covering, entirely off for a few hours in the day. Young *carrots* require the same treatment, and attending to their early thinning.

JAMES BARNES AND W.

MISCELLANEOUS INFORMATION.

ALLOTMENT FARMING FOR FEBRUARY.

A NEW year, with new hopes, has now fairly arrived, and to those who are truly industrious it will prove the signal to banish the apathy and dullness which a tedious winter is sure to produce. All grades of society in our highly-favoured isle bid fair to make an unusual stir during the year 1850, and shall it be said that the cottager alone remains inactive and stationary—looking only to a poor-law system for relief in adversity? We hope, and we are assured, it will not be so; at least our monthly mite will, we trust, assist in the general progress. England is still great among the nations, although she is somewhat stricken in years. Commercial matters carry a bold front; and, spite the hard struggle which severe competition (whether of skill or labour) is sure to engender, there is a living to be got for all who will try in earnest. We hear of over-population, and at the same moment of an enormous glut of capital awaiting investment, whilst the soil we tread is thirsting for this prime moving power; and who can yet assign limits to the productiveness of the soil? Compare a highly-cultivated garden, one become notorious for its produce—such we now and then meet with—compare such with the road-side garden of the sluggard, choked with weeds, half-dug, half-manured, a prey to devouring insects, stray animals, and neglect, and then say if England has done her whole duty in social matters? As great a difference may be seen in our farms; and these things duly admitted, what becomes of the idea of over-population? To the cottager, then, we say, PERSEVERE! the acquisition of one extra comfort will lead to the desire for another; a judicious economy will then be considered necessary, and thus both comforts and capital will equally increase. This done, you will feel you have a real stake in the nation; you will desire nothing but to continue to improve, and Poor-law unions will be as much despised by you as aimed at by the idle or the dissipated.

Rotation of Crops.—The first thing to be determined, if not already done, is what course of cropping to pursue. On referring to our diagram at page 184, of last year, we see no reason to depart from the plan there laid, unless the allotment holder has no cow; in which case he may, if he chooses, plant the root-division—intended chiefly for the cow—with potatoes, or any crop for sale. This, however, depends on his wants in-doors. We think, therefore, that the diagram may be safely followed out in general respects.

Store Roots.—These must be carefully looked over. Those who neglected separating them and potatoes in the autumn, should do so immediately; this will afford a chance of picking out all the rotten ones. The seed potatoes should not be laid more than two deep; indeed, our best kidneys, or early potatoes, we place singly, taking care not to rub off the sprouts. *Onions* should, also, be looked over; and, indeed, all store roots are best turned over at this period, for it arrests the sprouting of the *mangold* and *swedes*, and causes them to keep the longer. Of course, all sprouts must be carefully rubbed off. *Parsnips*, if left in the ground, according to our advice, must now be carefully trenched out, and the ground will be left in capital order for any crop. If no manure has been placed over their crowns, it should be done before trenching them out.

Saving Seeds.—It is scarcely worth the cottager's while to save his own seed, unless it be of the *onion*, or a favourite *cabbage;* most of the others occupy too much room; and such things as mangold, swedes, parsnip, and carrot, may be bought much cheaper than they can be grown. *Onions* for seed may be planted in the end of February, and old *cabbage* stumps will run, of their own accord, to blossom soon after.

Buying Seeds.—An estimate of the quantity of seeds per acre, or per drill, will be found at page 185 of last year's Cottage Gardener. The cottager should, as soon as his rotation is fixed, settle how much of each he will want, and let them be purchased at some first-rate seed-warehouse, for many of the small peddling country seedsmen sell an inferior article; their price, moreover, is frequently higher. We should hope before long, that gentlemen, or others possessing many small tenants, or clergymen, will purchase cottager's seeds wholesale, and retail them out at prime cost to the cottager. This would save every allotment holder a few shillings. With regard to *onion seed*, our practice is to buy an equal portion of Deptford, White Spanish, and Globe, or other kinds, and to mix all the seed together. This always ensures a crop. In *cabbages* we advise the Matchless, the Queen, the Nonpareil, and the Battersea, as good kinds. In *carrots*, the Altringham, the Early Horn, and the White Belgian, for cattle. In *parsnips*, the large Guernsey. In *turnips*, the Dutch, the Stone, and the Swede. In *peas*, the Blue Imperial, and the Prussian. In *beans*, the Green Long-pod, and the Windsor. In *onions*, the Deptford, White Spanish, Globe, and Tripoli; and in *borecoles*, the old Curled Green-kale, *savoys*, and *thousand-headed cabbage*. In *lettuce*, the Bath Cos, and the Hammersmith Hardy-green. Such as these will be found the best adapted to carry out the course of cropping we have to recommend.

In *peas*, it is an essential point to grow those which require moderate sticks, and which produce their crop in a glut, in order that the ground may be soon clear for the sake of other crops.

In *cabbage*, the dwarf, early-hearting, and compact kinds, are alone desirable. These crop thickly together; and may, if requisite, be taken speedily off the ground.

In *carrots*, the Altringham produces a large winter's root, in the drill compartment; whilst the Early Horn is a capital summer and autumn root, and classes with the bed culture.

In *lettuce*, solid-hearting kinds are best; the little, insignificant-looking, Hammersmith will produce more than any other, for they may be sown broadcast, and thinned to only four inches apart.

Improvements.—Any arrears of such improving processes as drainage, trenching, amelioration of the staple of the soil, &c., may still be carried out before cropping commences.

Hedging, or other fencing, must be completed forthwith. Any gaps, too, must be well made up by plashing, or otherwise. Where allotments are near populous places, and the unlucky lads get a hole through into the plot, a berberry-bush, if procurable, will prove superior to anything else.

Manures.—Such as have lain accumulating for many months should have a little examination before wheeling or carting them out; for the later mucking out of pigs, or the cow, are not fit for immediate use, unless to dig in for cabbages, &c. It is, we think, the best economy to trim all long and raw stuff aside, before removing the mass. The mellow material below will be capital for drills, or for the bed culture; and the longer, and more raw portion, may be covered with common soil, in a mound, to exclude rain; this will be wanted in the course of the summer. If, in removing the manure, any of a *very old* mellow character should come to hand at the bottom of the heap, let it be removed to an outhouse floor, and spread a few days to dry. In the meantime, let all the chimneys be clean swept; and if a few odd shillings can be pounced upon, get some good neighbour, who makes guano purchases, to sell you from fifty to one hundred pounds weight of Messrs. Gibbs and Co.'s *Peruvian Guano*. Also, collect all the burnt-ashes you can, charcoal dust, &c., and add all these to the old humus, or rotten and mellow manure, on the outhouse floor. Turn the whole, and blend them thoroughly, and you have a material of a highly concentrated character, excelled by no other fertilizer; and this you may sow in the drills with your swedes, mangold, parsnips, carrots, &c.; whilst the coarser manure may be dug in a spade's depth.

Early Crops.—The industrious cottager, emulous of making the most of the summer, while the season is young, will begin betimes to see what he can get before his more tardy neighbours, without compromising the rotation of crops he has planned; we will hereupon give him a little advice. *Cabbages* of a good hearting kind, such as the Matchless, may be introduced between almost any coming crop, provided a judicious forecast is exercised. A clever cottier will use his head as well as his heels. Now, we advised, long ago, in our allotment advice, a good provision of autumn-sown plants; for although the allotment holder, like other folks, may go a-begging sometimes, we would not have him trust to such a course, but rather encourage a habit of self-reliance, which, indeed, is the basis of all true progress and independent feeling, whether in the individual or the community at large. Be this as it may, plenty of dwarf early cabbages should be planted out in the second week in February. *Horn carrots*, too, should be sown on a rich sloping bank, in a warm situation. These will want a little litter strewn over them; in fact, to be attended to like early radishes. They will come into use in the early part of May, and continue for many weeks. *Potatoes*, in warm situations, we need hardly remark on: everybody looks well after these. *Peas*.—Some Blue Imperials, soaked in lukewarm water for two hours, may be sown in the first week, on ground required for a secondary crop in the end of July. *Early long-pod beans*, soaked as the peas, in the first week—these may go on the drill ground; and *parsnips* might be sown between the rows in March, or the latest potatoes planted between. *Swede Turnips* placed close together in drills, in a warm nook, and soiled in just overhead, will produce fine sprouts for boiling in three weeks, or less. These are a very useful thing, when greens are short. *Round-leaved spinach* may be sown in the first week, in a warm position and on rich soil; this is a useful early vegetable. Strong *rhubarb* plants may be covered, at the beginning of February, with a chimney-pot, or any old cask, or other vessel, to ward off the winds. This will make three weeks difference in the produce.

Breaking down Ridges.—Land that was trenched and ridged in the autumn, as we recommended, will soon require digging down for crops. Be sure not to do so when snow is on the ground, or when frozen. Mind, also, that it is dry when handled, or it will become what practical men call "livered," which means, that the air cannot enter. No crops will thrive on land in this state, albeit they may be good soils.

In conclusion for this month, let us advise the cottier to be very earnest in his endeavours. It is no light matter to have a nice garden; and the weal or woe of a family frequently depends on the amount of perseverance displayed by their male protector.

THE POULTRY-KEEPER'S CALENDAR.

February.

By Martin Doyle, Author of "Hints to Small Farmers," &c.

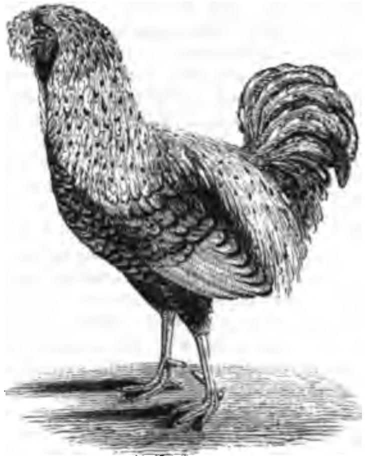
Fowls.—The doom of our handsome cock has been sealed. His tyranny and selfishness increased, notwithstanding the coercive discipline he had undergone; and he has therefore been put to death, and hung—by the tail. After three weeks' suspension, his body was stripped of the plumage, which he had disgraced by his want of gallantry and his general misconduct, and converted into cock-a-leekie. Thus the gluttonous creature has been more useful in his death than in his life. The hens, notwithstanding his constant neglect and frequent chastisement of them, seemed so woe-begone at his removal from them (it appeared as if, from the force of habit, they preferred conjugal tyranny to the desolation of widowhood), that the vacancy in their affections was immediately filled up. A promising white cockerel, also of the Dorking breed (with four of his fairest young wives, who accompanied him from his former seraglio), was placed beside them at night. In the morning he was found dead upon the roost: his death is a mystery. No marks of ill-treatment were discovered on his corpse, and he had been in perfect health on the preceding day. The wives, who had followed his fortunes and perched at his side, were alive and in health on the fatal morning. We introduced another cockerel from the same young brood on the succeeding morning, and, after two or three day's amusing shyness of each other, a gradual union of the two *cliques* took place, and the young cock now seems to be a bond of perfect amity between both.

The continued severity of the weather, and the want of artificial means of warming the fowl-house, have prevented any laying of eggs yet. Amateurs, who have to purchase corn for their fowls, will find them unprofitable, as layers, during a hard winter of long continuance. While nature assumes a snow-white dress instead of her natural green livery, fowls become so mopish and confounded, that they will scarcely leave their roosts for food. The most quarrelsome hens become quiet, the cocks crest-fallen. We gave our fowls a few scraps of meat during the snow, to revive their languid spirits, as they had no chance of picking up insects, which their instinct leads them to seek as condiments with their other food, in the hope that the excitement occasioned by scrambling for the meat might beguile a few moments of their melancholy hours, and give them healthful exercise—as a game of "hockey," or of "foot-ball," would exhilarate school-boys. We also, on the suggestion of the Rev. E. S. Dixon—the most delightful and practical of all writers on poultry—have burned some oyster-shells (partly to warm our fingers), in order to supply lime to the hens and pullets in the most agreeable form. The picking of the calcined oyster-shells, which in due time will generate egg-shells, has been a great source of pleasure to the fowls.

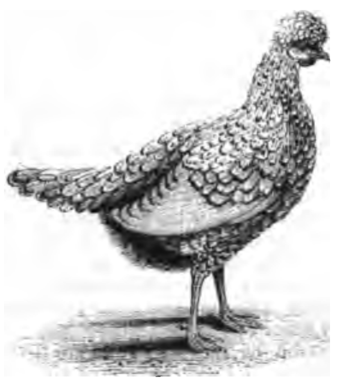
Much mortality in the fowl-yard is not to be expected, since the air, though cold, has been dry. If the roosts and floors have been kept clean, and the wind and snow prevented from entering through the roof of the poultry-house, and blowing on their heads (which are their most tender parts), fowls generally have probably preserved their health.

Spangled Hamburgh Fowls.—The next variety we shall particularise are the spangled Hamburghs, of which there are two kinds, the *Golden* and the

Silver. They are inferior to the Dorking and Spanish, both for the table and as layers, but they are very fine and very handsome. We are indebted, both for the following portraits and descriptions, to Mr. Richardson's work on "The Domestic Fowl." He says:—"The Hamburgh fowls have a large top knot, with neither comb nor wattles, and another peculiarity that shall be described in its proper place. I am this moment writing my description of the Hamburgh fowl from two beautiful specimens as they stand before me on the table. These fowl gained the prizes at the last show of the Royal Agricultural Improvement Society of Ireland, from a host of very worthy, but still far inferior competitors; consequently, in my case, no blunder can possibly occur; and my friend and co-laborateur, William Oldham, has presented, in his woodcuts, the portraits that I have endeavoured to describe in letterpress.



THE SPANGLED HAMBURGH COCK.



THE SPANGLED HAMBURGH HEN.

"*The Golden Spangled Hamburgh Fowl* is one of no ordinary beauty; it is well and very neatly made; has a good body, and no very great offal. On the crest, immediately above the beak, are two small, fleshy horns, resembling, to some extent, an abortive comb. Above this crest, and occupying the place of a comb, is a very large brown or yellow tuft, the feathers composing it darkening towards their extremities. Under the insertion of the lower mandible, or that portion of the neck corresponding to the chin in man, is a full, dark-coloured tuft, somewhat resembling a beard. The wattles are very small. In the *golden* variety, the hackles on the neck are of a brilliant orange, or golden yellow; and the general ground-colour of the body is of the same hue, but somewhat darker. The thighs are of a dark brown, or blackish shade, and the legs and feet are of a bluish grey.

"In the *Silver Spangled* variety, the only perceptible difference is, that the ground-colour is a silvery white. The extremity, and a portion of the extreme margin of each feather, are black, presenting, when in a state of rest, the appearance of regular semicircular marks or *spangles*."

Turkeys.—These birds, like pea-fowl, will disdain confinement, and prefer the open canopy of heaven as their roof, and the topmost bough of a tall tree, if they be not prevented from thus following their propensity in this respect. It is evident, however, that they ought to be under cover in winter, and under lock and key too, in most places. They should, however, have free ventilation, and a distinct and elevated roost.

It is doubtful whether poultry-breeders act prudently in fattening their turkeys at the early age at which they are usually brought to table. The turkey does not arrive at maturity for some years. Excepting in the winter months, farmers may keep them over, at least for the second winter, at very little cost. The birds will procure their own food, if they have a range of fields, and, more especially, the privilege of going into woods where beechmasts and acorns abound. Turkeys are generally killed long before they attain their natural size and weight, as if it were certain that their flesh would be too tough if they were allowed to complete their growth. The fact is, that the flesh of a two-year old turkey, if it be kept long enough in the larder, is sufficiently tender. There is great loss of meat sustained from killing them prematurely. If an old bird requires ten weeks' high feeding, the additional weight of flesh pays for that. After turkeys are thoroughly fat, they should be killed; for every ounce of food afterwards is not only a waste, but an injury to the quality of the flesh, which it tends to inflame and discolour. Sickness, too, will naturally attend a too plethoric state of body, and the flesh of a sick bird cannot be wholesome.

The Goose is the bird of all birds for the cottager who adjoins a goose-common. What a shame, then, to take the common from the poor man, without giving him, at least, a patch of garden, in compensation for the privilege of which he is deprived by the enclosure of the commons! How true is the poetic lamentation—

> "It is a crime in man or woman,
> To steal a goose from off a common;
> Then sure the man's without excuse,
> Who steals the common from the goose."

A roast goose, stuffed with potatoes and onions, is a noble dish; and, with apple-sauce added to it, it is still more luxurious; or, if boiled and served up with onion-sauce, what can be better? and what broth can exceed that extracted from the giblets? It is truly the cottager's or the farmer's dish. The fattening process of geese is at its termination now; and the cottager who has had a quiet out-house, plenty of food and of clean straw for fattening a goose or two at least, has been unwise not to have supplied himself with such a luxury for his Christmas dinner. If he kills the goose for his family, he has the goose-grease, which is useful for many purposes; and the feathers have some value. The quills supply his boys and girls with pens; and "the pen of a ready writer" may turn to great profit. A man may keep the same goose for laying and sitting during his whole life. Indeed, an old goose is so tough a bird to eat, that there is no temptation to kill her after she has attained "a certain age," which really may exceed that in woman.

Continue the general fattening to poultry as recommended in the preceding months.

DUCKS are now going out of season. It may not be useless to mention, that ducks intended to be boiled (and served with onion-sauce), should be salted a day or two before they are dressed.

BEE-KEEPER'S CALENDAR.—FEB.

By J. H. Payne, Esq., Author of "The Bee-Keeper's Guide," &c.

VERY little attention will be required during this month beyond looking to the coverings, and seeing that they be all sound, and that no moisture comes upon the tops of the hives. Towards the end of the month, let the floor-board of each hive be again cleaned, and a little food administered should the stock of honey be very good; always remembering to select a mild day for the purpose. Let the food be given, if possible, at the top of the hive; if at the bottom, not till after sunset; carefully stopping up the entrance of the hive, and removing the vessel in which the food was given before sunrise the next morning; for the appearance of the aconite and crocus will not only delight *our* eyes, and gladden *our* hearts, but they will also arouse our little favourites to life and activity; and, as the supplies of honey from these flowers, at this early season, will be very small, sufficient only, perhaps, to create a desire for a larger quantity; the feeding-pan, therefore, if allowed to remain at the bottom of a weak hive, will be resorted to by all the bees of the apiary, causing much fighting and loss of life, and very probably the destruction of the stock in which it had been placed. By feeding at the top, all this may be avoided; not only the trouble of removing the feeding-pan every morning, but the danger and loss certain to arise from fighting.

In my last paper, I promised my cottage friends an account of the sum, in one year, made by a cottager, living in a village in the northern extremity of the county of Suffolk. The man is a shoemaker, living in a very small cottage, but with ground sufficient to place from 30 to 40 stocks of bees. I should first say, that, some years ago, he had occasion to call at my house, and, finding me in my garden with my bees, and seeing they were managed in a different way to what he had usually seen, he asked me some questions relative to my manner of treating them; and, from the nature of the questions, I felt induced to shew him some glasses then filling with honey (for it was June), and told him, in a few words, my method of management; and, although he had never possessed a hive of bees, he went away fully determined that, as soon as he was able, he would procure a stock or two. I neither saw nor heard of him for seven or eight years; after which time, having some business at Bury, he called on me to thank me for the instruction he had received from me; and, also, to tell me what he had made of his honey that season (this was at the end of October). He told me that the situation in which he lived was an excellent one, having, immediately to the south of him, several hundred acres of heath, covered with ling, thyme, furze, broom, &c.; and on the north, cultivated land, where mustard and large quantities of white clover were grown; that he generally kept thirty stocks through the winter; that he used the improved cottage-hive, 9 inches by 12, as figured in page 209 of the first vol. of THE COTTAGE GARDENER, and placed upon each the small hive, 8 inches by 7, figured in page 305 of the same volume. He also told me that each stock filled him one of these small hives, and some stocks two of them; that he was careful to have these hives made very neatly, each one holding from 8 to 10 lbs. of honeycomb; and that, upon finding his stock of honey so large, and of such excellent quality, he resolved at once upon taking it himself to London; for which purpose he hired a light cart, and at the west end of London offered his little hives of honey from door to door, which sold as fast as he could well offer them, for from 2s. to 2s. 6d. per lb., and some even for more money. For a small hive of fine honey of 8 lbs. he would readily obtain a sovereign; so that, in all, he received a little above £40 for his honey, the produce of his bees for *one year*.

Now, is not this account sufficient to induce every cottager who reads it, at once to do his best in obtaining a stock or two of bees? and should he, in the first year, clear only 40s., even that trifling sum would be an agreeable addition to his little income.

MY FARM-YARD.

THE month that is now approaching is a busy one with the dairy-farmer; and with the holders of small plots of land it is a perplexing one as well. The grass has not yet made any growth. The little hay rick is beginning to look very small. The store of roots has diminished in such a manner that you seem quite to grudge each basketful of "wurtzel" that your cow eats. However, "better times" (I hope, in every sense of the word,) will soon arrive. When once January is passed, we look forward to long days, bright sun, and green fields.

There are several methods of managing a dairy by which money can be made: namely—making butter, making cheese, fatting calves, buying cows in calf, and selling them with the calf at their side. Each farmer has his own pet system. The one generally followed by those who have only a few cows is the first one; and, therefore, I will make a few remarks on *butter making*, which will apply equally to the owners of one or fifteen cows; but we will suppose a dairy to consist of six.

It ought to be arranged that one cow calves every two months, by which means you have always highly coloured butter, as the milk from a freshly-calved cow is much more yellow than when it is "older."

If possible, in such a sized dairy, have three Alderney cows. The cream which rises from their milk is always rich, and of a good colour; but butter made from the Alderney cow does not keep as long as from any other cow.

At this season of the year, cows are under shelter during the night, and are not milked till after six in the morning.

The milk should be carried to the house as quickly and quietly as possible; and immediately on its arrival should be strained into pans, from which has just been poured boiling water. By adopting this plan, the cream rises quickly, and in a greater quantity.

The Devonshire method of "setting" the cream is certainly the best, especially in winter, provided you have a stove on which you can scald the milk; but it does not increase the cream sufficiently to make an extra fire answer. The way the "west country folk" manage is this:—When the milk has stood 12 hours, in shallow tin pans, it is placed on a stove, with a gentle fire under it. Directly circles are observed forming round the pan, it is put into the dairy; the next morning it is skimmed and beaten up with a wooden spoon till it becomes butter, which is not long in doing. The cream thus scalded is a most excellent addition to fruit, either baked or raw.

When a cow has calved, warm bran mashes should be given her for two or three nights, with a little nitre mixed with it. Her udder should be well fomented with hot water, twice in the 24 hours; and, if it feels at all hard, some marsh-mallow-leaves, boiled in water, may be used, instead of the plain water. By watching, and attending to these simple things, and not waiting till the animal is really ill, you will be spared much loss, and much after-trouble. Remember—"Prevention is better than cure."

A cow should not be turned out to grass till the calf is four or five days old; and not then, if the weather is wet. She should only remain out a couple of hours the first day, gradually increasing the time, till the calf is sold; which, if you do not fatten it, you will do when a week old.

A good cow, and a careful dairy-maid, ought to make 10lbs. of butter a-week, for the first six weeks after calving. I know we read of cows making 16lbs. and 17lbs. a-week; but I know they are very rare. I have only met with one that has made more than the 10lbs., and that was a Suffolk cow, and she made 11lbs. for some weeks after calving. I fear, if you strike the average of the quantity of butter each cow makes, you will find 7lbs. nearer the mark, per week, than 10lbs. even.

The cows that calve in winter, and early spring, must have plenty of moist food, such as mangold-wurtzel, Belgian carrots, or brewers' grains. I prefer the Belgian carrot to any other root for winter feeding, as it not only increases the milk, but does not impart any unpleasant flavour to the butter, as turnips and swedes are apt to do. For spring feeding, and in the summer, when your meadows are put up for hay, there is nothing equal to lucerne; you can, with that crop, in truth, "cut and come again;" for, if sown in March, on sandy loam, it will be ready to cut in May, and two or three times afterwards during the summer.

Great care should be taken in milking the cows—not a drop should be left in the udder; the "drippings" are the richest part of the milking; besides, if you do not milk a cow clean, she will every day give less and less until she becomes dry.

The great secret of obtaining a good supply of milk, during many months in the year, is to give your cows a frequent change of food. In the summer this is easily done, but it must also be managed in the winter. By having a little forethought, during the sowing season, a variety of roots can be stored in the autumn for the winter's keep.

And now, if some of your cows have calved, may I enquire what becomes of the "skim milk?" I fear, from many gentlemen's houses, the answer would be—"Oh! it goes into the hog-tub." So far, that is a better place for it than to have it heedlessly wasted; but are there not many of the cottagers around you, who "breakfast and sup" without a drop of milk? I know it to be the case in many parishes; and would they not be most thankful for a small portion of what you have usually given to the pigs? If you cannot afford to give it, sell it them, at 1d. a quart. I assure you the boon will be received with great gratitude. It is, certainly, rather a troublesome job; but what good can be done without trouble? If you were to sell, or give, it twice a-week, at a certain hour, you would soon become accustomed to it. "Habit, you know, is second nature."

Farmers very often make skim-milk cheese; the whey which runs from them is of no use, except for the pigs. In this case, of course, much milk could not be given away, or, indeed, sold; but still *something* can be done. Have you not heard this sentence read?—"Be merciful after thy power; if thou hast much, give plenteously; if thou hast little, do thy diligence gladly to give of that little." C. M. A.

THE PHYSIC-GARDEN.

By a Physician.

No. 4.—CRUCIFERÆ.

THIS eminently European order contains, at the same time, some of the most abundant, and the most useful, of our English herbs. One of the commonest weeds that we have, and which is to be met with on every road-side, even within the boundaries of the most populous cities—I allude to the Shepherd's Purse—belongs to this order; as also do the Wallflower, Honesty, Rocket, and common Stocks, all well-known ornaments of our flower-borders. In the kitchen-garden, we find some of its most valuable tenants belong to this order, *viz.*, cabbage, brocoli, cauliflower, turnip, mustard, horseradish, and sea-kale. To this list we must add rape—a very valuable herb to the agriculturist; and, also, the following common English wild plants:—the water-cress, and other cresses, the scurvy-grass, and Jack-by-the-hedge, each of which possesses some esculent or curative property. The Dyer's Wood, which formerly afforded a favourite blue dye in this country, likewise belongs to this group of plants.

The universal character of the Cruciferæ is to possess anti-scorbutic and stimulant qualities, combined with an acrid flavour. The plants which compose it, are, however, on the whole, of more value for their esculent than for their medicinal properties.

WATER-CRESS (*Nasturtium officinale, R.Br.*).—Some of my readers may fancy that I am digressing, in introducing to them a wild water-plant, but let me tell them, if they have never made a garden-plant of the water-cress, they should lose no time in doing so—if they have a little stream running through their pieces of ground. Its agreeable warmth and flavour, as a salad, are too well known to require comment; but it is for its anti-scorbutic, and slightly stimulant qualities, that I would particularly recommend it, being firmly convinced of its efficacy. Our rural Flora does not furnish a more wholesome, or a more useful salad than the water-cress; nor does it afford any other salad-herb which is such an effectual purifier of the blood. To adopt the forcible though quaint style of recommendation of an old writer, "Those that would live in health, may use it, if they please; if they will not, I cannot help it." The juice was formerly used, mixed with that of scurvy-grass and Seville oranges, when it constituted a popular remedy, known as "Spring juices."

CUCKOO-FLOWER (*Cardamine pratensis, L.*).—The Cuckoo-flowers (which are also known as "Lady's Smocks,") derive their English name from their blossom appearing about the same time of the year that the cuckoo's note is first heard; a circumstance which Shakspere has recorded in these words:—

"When daisies pied, and violets blue,
And Ladies-smocks all silver white,
And cuckoo-buds of yellow hue,
Do paint the meadows with delight,
The cuckoo, then, on every tree," &c.

The leaves of this plant are but little inferior to the water-cress, as a wholesome green food; and the flowers have long been used for certain diseases, particularly those of a nervous character, such as epilepsy, hysteria, and asthma. It may be given in doses of from 1 to 3 drachms of the powder of the dried flowers, two or three times a-day; but its use is chiefly confined to children, and even on them its operation is not very sensible: on this account it has, therefore, almost fallen into disuse. Our grandfathers attributed to the plant the virtue of removing freckles, spots, and blemishes, from the face, if it was applied at night, and removed in the morning; but, be this as it may, they would have done posterity a much greater service if they had endeavoured to impress on those who would succeed them, the benefit that they would experience, in after life, from abstaining from those courses of indulgence in youth which are the main cause of such physionomical defects.

Horseradish (*Cochlearia armoracia*).—Everybody who knows roast beef, knows horseradish; but it is not so generally known that it is a useful remedy in cases of scurvy, and, also, in some other chronic disorders; while it has been likewise recommended in certain cases of dropsy, especially those which follow intermittent fevers. If taken in considerable quantities it acts as an emetic; and, with this intent, it is serviceable in cases of poisoning by narcotic substances. As a syrup, it is a useful remedy in hoarseness; and it is also said to excite an appetite in weakened and debilitated constitutions. For the latter purpose a piece of the root is to be chewed.

Scurvy-grass (*Cochlearia officinalis, L.*).—Nor have I much to say with reference to this species; its English name tells almost its whole history, as far as it has any curative interest. In sea-scurvy, it has been found very beneficial; and its juice is reckoned serviceable, as a gargle, in scorbutic affections of the gums and mouth. Like the water-cress, its leaves are sometimes eaten with bread-and-butter; and it somewhat resembles them in possessing gently stimulating and aperient properties. With these trifling exceptions, it possesses no claim to general attention. It was once, however, in much greater repute than it is now.

Fluxweed (*Sisymbrium Sophia, L.*).—This plant is commonly found growing on road-sides, and in places where old buildings have stood; and though its medicinal virtues and qualities are not thoroughly ascertained, yet it will be interesting to know how and for what diseases it was formerly employed. Its use was chiefly confined to the checking of dysentery, from which circumstance it derives its English name, as well as its other cognomen—"The Wisdom of Surgeons;" and to effect this end, "the seede is dronken with wine, or water of the smithes forge, wherein gads of steel have been often quenched." In hysterical cases it was also used, and likewise externally applied for the cure of old sores and wounds. It had the credit, besides, of "consolidating and uniting bones broken or out of joint;" but I merely mention this to give some idea of the rude state in which the science of surgery must have been 100 years ago.

Cabbage (*Brassica oleracea, L.*).—I fancy I see surprise in the face of my reader, when he comes to the word "cabbage;" and I think it requires no powers of Clairvoyance to read his unuttered interrogatory thought, "What can a cabbage have to do with a physic garden?" It is true, that neither the homely cabbage—which is the cottager's main realization of *vegetables*—nor the red cabbage, white cabbage, Savoy greens, Brussels' sprouts, cauliflower, or brocoli (all of which are *mere varieties* of the common cabbage), are now used medicinally; nevertheless they do possess certain virtues and qualities, of which, though not very important, it is as well to be aware.

Taken in moderation, they are exceedingly wholesome, being very slightly aperient; but when eaten plentifully they are apt to produce flatulence. As a cure for drunkenness, cabbage broth had a great renown; for old writers affirm that there is such an antipathy or enmity between the vine and the coleworts (or cabbage tribe), that they will not grow well near each other. Cato, it is said, used no other physic; and Chrysippus quite idolised them—writing a whole volume upon their virtues. "He appropriates them," says Culpepper, "to every part of the body, and to every disease in every part."

The decoction, or broth, was, however, strongly recommended by other primitive practitioners as of very general use; particularly as an external application for pain in any part, whether gout, bruises, swellings, or sores. Asthmatic people were also advised to drink it; and I might mention many other diseases in which it was, in olden times, prescribed, when, if the patient got better afterwards, it appears that the cabbage had all the credit of it; it being well known that no prejudicial effect was at all likely to accrue from its employment.

Mustard, Black and White (*Sinapis nigra, L.*, *Sinapis alba, L.*).—These two plants are so similar in their medicinal qualities, that I shall treat of them as if they were but one plant; though I may remark that they are called *black* and *white* from the colour of their seeds, and that the latter are rather milder in their action than the former.

The well-known condiment which we call *mustard*, is the flour of the mustard-seed, moistened; which, particularly if vinegar be used, causes the essential oil to be evolved, upon which its pungency depends. Again, the favourite salad herb (commonly sold with another plant, and then called *mustard and cress*,) is the young seed-leaves of the mustard; and a very wholesome kind of green food it is. In this young state the leaves are mild, tender, and slightly stimulating; but the old leaves become rank and disagreeable, partaking of the acrid principle which is found developed, to the greatest extent, in the seeds.

To the medical man, the flour of the ground seed is the only part of note; and whether it be employed externally or internally, its action is the same, viz., that of an acrid stimulant, probably intermediate, in its effect, between horseradish and pepper. As a condiment, when taken in small quantities, it is a most excellent adjunct to heavy and indigestible food of any kind, exciting the energies of the digestive organs, and promoting the appetite. If taken in somewhat larger doses—as one or two teaspoonsful—it acts as an emetic, and is a useful and handy thing for such a purpose, in cases of poisoning.

But its most important use is that of an external stimulater, or rubefacient. It acts as a prompt and powerful irritant, producing inflammation; and if kept applied too long, will raise a blister. The best form of "mustard-poultice" is to spread, on a piece of linen or calico, a paste, made of equal parts of common wheat flour, or linseed-meal, and black mustard-seed flour, mixed with boiling vinegar, or with lukewarm water, of not higher temperature than 100°.

To most persons, its application is somewhat painful; but with those who do not feel its operation after about twenty minutes, care should be had not to keep it on too long, lest it cause a disagreeable sore, and one not readily cured.

OUR VILLAGE WALKS.

(No. 17.)

WE sometimes find a dazzling sun entering our rooms, while the ground is covered with snow. I have more than once been obliged to move my chair, when the full beams have fallen upon the spot where it stood; and I could scarcely believe it possible that such a sun could belong to winter, and could shine so warmly while the frost was still binding all things in its iron grasp. It is a strange contrast, and strikes the mind forcibly. How many situations in life resemble this combination! How many worldly trials and troubles surround us, lying like snow upon our hearts, while the bright, cheering influence of the "Sun of Righteousness" comforts and gladdens us under them; almost causing us to forget their power. It is beautiful to watch the sparkling drops falling rapidly from the trees and houses, beneath the soft warm rays; the very sound as they reach the earth is musical; and while passing under trees during a mid-day thaw, we seem to be moving through a silver shower. When snow becomes well beaten on the foot-pads, walking is very delightful: there is a briskness in the air, a sparkle on the earth, and a spirit in our own feelings, that leads us pleasantly on; and we perpetually see some object of beauty that interests and delights us. Whatever belongs to nature never wearies, however frequently it meets our eye; and sometimes we are peculiarly struck by that which we have seen a thousand times without particular notice. How beautifully a bright wintry day sometimes closes! I was this evening enjoying the sunset, in spite of cold, and really a summer evening scene could scarcely be more lovely. The ground was white with snow, which also lay quietly on the trees and evergreens; the sun sunk gently down among rich yellow clouds that threw a sort of golden light around; and a frosty mist was gathering in the distance, foreboding another severe night. Every distant sound came with clear distinctness—the sudden report of a gun sounded like that of a cannon; and I *fancied*, or tried to fancy, that the plaintive bleating of lambs came from the distant farms—but this, I have every reason to think, was a delusion. The stillness and tranquility of an evening such as this is very striking. It compels us to pause—to admire—to think; and it answers our thoughts eloquently. That departing sun, with its cold pale beams, is rising in glowing, glittering grandeur on many distant lands; rousing many of our fellow-men from their wearied sleep, and calling them forth to the labour of another summer's day. To us, his daily course is now short and chilling; but to another portion of our globe, he is shedding abroad all his glory, and ripening and enriching fruits and flowers with undiminished power. There is no night, no rest, for the glorious orb that "goeth forth as a bridegroom out of his chamber, and rejoiceth as a giant to run his course;" his beams are ever bright; his warmth ever the same; his glory ever resplendent. The restless earth, as she obeys the impulse of the Hand Divine, removes some of her inhabitants from his immediate influence at stated and appointed times; clouds gather round us, and obstruct his beams—sometimes even the intervening form of a far inferior planet will darken portions of our earth, and almost persuade the astonished birds that night is at hand; yet the sun is ever the same. He is the cold, pale, dim shadow of Him who hath said, "I am the Lord, I change not"—who is "the same yesterday, to-day, and for ever"—"whose glory the heaven of heavens cannot contain." We are sometimes tempted to think our God has forsaken us—we cannot see or feel His immediate presence as we were wont to do; trials, bodily and mental, sins and wavering faith, cloud our spiritual enjoyments; some earthly object rises up, and dims our spiritual sight, and it seems as if night had indeed set in to the soul. But let us remember that our "Sun and shield" is ever cloudless. Beautiful as is the source of earthly light and heat, universal as is his power, unchanging as is his brightness, he is but a dark and distant type of "Him with whom we have to do."

While I was admiring the sunset, my attention was attracted to the proceedings of a flight of rooks. They were assembled in parties under one or two large trees, that stood singly in the paddock, where the snow lay thinly, and where the shells of beech-nuts still remained like a carpet upon the damp ground. They were extremely busy—hopping about, fluttering their wings—sometimes appearing almost to converse—sometimes fighting, and at intervals flying lazily into neighbouring trees, and then returning again to the general assembly. There seemed to be something going on among them, for their movements were very much like those of intelligent beings, and reminded me of those that take place among ourselves, when we meet for conversation or discussion. By degrees, a large number settled on the trees of the rookery; dropping down into their nests, as if inclined to begin building, and making extreme noise, and flapping among the boughs. It appeared to me as if a general cogitation had taken place, relative to the approaching time for repairing their nests; for I seldom observe them at the rookery during the winter, and never remarked so much clamour and commotion till the building season commenced. There is much interest in watching the ways of rooks; and their loud unmusical cries are never annoying, however near we may be to their busy colony. From the earliest morning to the latest evening hour, in the building season, their noise is unceasing; and even in the middle of the night I have often heard a loud, deep "caw;" suddenly breaking the few hours of silence they enjoy, as if from the watchman of the night. Rooks interest us, too, because they love to dwell near us—they come confidingly around us, and seldom establish themselves far from the haunts of men. They even brave the noise of towns, and settle contentedly upon trees in the midst of a large population. There is something very pleasing in hearing and seeing the busy movements of these birds, high above our heads, regardless of the smoke, and bells, and discord, that take place beneath the very trees on which they rear their young. Among the sheltering leaves they are screened and secure, like those whose hearts and hopes rise beyond earthly things, and shelter themselves in the quiet hiding-place of a Saviour's love.

A gentleman, known to my father in his youth, encouraged his rooks so much, that they built in the gooseberry and currant bushes in his walled-garden; and became so tame, that they permitted him to walk among them, and look into their nests, without displaying the least symptom of alarm. This was a singular instance of their confidence, because rooks almost always build in the highest trees; and though they frequent the neighbourhood of man, yet they seldom approach a garden, and are not tame in other ways.

Rooks may convey a salutary lesson to our minds.

They love to dwell near *man*, they rest confidingly on his protection, though they suffer, year after year, destruction at his hands, and sweep with loud cries around the empty nests from whence their young have fallen. Let us as confidingly, as faithfully, cling to the Lord our God! Let us love to dwell near Him; He will not, as man does, cast out those that come to Him, but will in all our trials and afflictions "make a way to escape, that we may be able to bear them."

MY GARDEN NOTES.

Soot as a Manure.—In fulfilment of the promise made in my last (p. 216), I will continue my remarks on soot, that invaluable manure which so many cultivators allow to be taken from their premises, while they go to the expense and trouble of procuring other stimulants, as guano, compounds, essences, and heaven knows what, which are sent forth under pompous and alluring titles—stimulants as destructive to vegetable life as the pleasure of those who confide in them. Soot-water is the only manure I have applied to my pot-plants, from the moment I attempted to grow a leaf; and the general observation of my friends is—"What a splendid colour!" "How beautiful the foliage!" What an exquisitely-dark tint!" "What do you apply to them?" When I say, "Only soot;"—"only soot." The thing seems a mystery to many; one observes, "That is such horrible stuff—so black and dirty, I can't think of using it; there is this and that thing to be had in a nice little bag or bottle; and it's only to put a *pinch*, or *little drop*, in the watering-pot. I should think that would answer equally well." Yes, my friend, these are all very well; and, doubtless, in the hands of scientific persons, may fully answer the purposes for which they were manufactured; but we do not all possess sufficient knowledge to undertake the application of these chemical preparations. I, therefore, maintain that the more simple the stimulant, the safer its application by those who have not passed the ordeal of science. "I should be very glad to use it," says another, "but I can't soak it; do what I will, I can't get the water clear of the soot; if it soaks for a month, it will not *settle*, but clings to everything we dip it out of the tub with, consequently, I am obliged to give it up." Well, stop, my friend! and I will just explain to you a very simple process, by which you may have it as clear as sherry wine, and as strengthening to your plants as the latter to the heart of man. All you have to do is to fill a cask with water (say ten or twelve gallons); put about a gallon of soot into a fine canvas bag, and with the soot a good-sized flint stone; tie the mouth of your bag tightly, and suspend it inside the cask; the stone will keep the bag with the soot under the water, and, in the course of a day or so, your liquid manure is brewed without farther trouble. Now, apply this once a week to growing plants, twice a week to those in flower, and I will stake my credit, as an adviser, for the result. I always apply it very pale, which scientific men strongly recommend; I by no means lay claim to the possession of scientific knowledge, I only know what has been the result of my proceedings; and if the distribution of these results should bring one ray of satisfaction or delight to any who, like myself, take pleasure in the beauties with which God has so bountifully begemmed the carpet of this globe, I shall be amply repaid.

The Tulip Bed.—The cultivation of the bulbous tribe of plants is one of the most delightful in the whole range of gardening, and foremost among its numerous splendid families. Who does not contemplate the gorgeous tulip bed with feelings of delight? Yet that pleasure is somewhat alloyed by the fact of its melancholy appearance through two of our brightest summer months. After the rich and exquisite embroidery of its flowers are past, comes the dull and saddening prospect of fading and faded foliage, looking like an abandoned spot amid all the other beauties of Flora. This is a great drawback on the enjoyment this beautiful flower affords, and is the reason they are not more universally cultivated. I dislike this as much as any one, yet I cannot forego the pleasure of surveying my little bed of tulips, which I always place in the most prominent position. I endeavoured to improve on this one year, by planting geraniums between the bulbs at the end of May; but, from the small space between the bulbs, was unable to fix them firmly in the ground, consequently they did not thrive to my satisfaction. Yet, seeing the efficacy of the plan, if properly carried out, I made arrangements for so doing the next autumn, at the time of preparing the bed. Having placed the bulbs, before covering them, I put a sufficient number of pots, six inches in diameter, over the surface between the roots, arranging them that the plants, when at perfection, would be sufficiently thick. I then, with a round trowel, took out the earth on which each pot stood, filled the pot with it, and thrust the pot, full of mould, into the hole thus made, putting a stick in the middle to point out its position; I then raked over the bed smoothly, covering up bulbs and pots, the sticks remaining upright in their places; consequently, when the beauty of the tulip has fled, all I do is to take out the pot full of mould, and thrust another, of the same size, or a size smaller, *with the plant in it*, in its place; the plant having been trained high enough to overtop the foliage of the tulip, which is allowed to die off unmolested; ripening the bulbs while the plants in the pots are progressing, cheering us with their blossom on a spot which would otherwise appear a dreary waste.

W. Savage.

CELERY CULTURE.

I wish to correct an error, which I have only just detected, towards the close of my remarks on the cultivation and uses of celery, where, at page 121, a few lines from the conclusion of those remarks, instead of "particularly in *dry* weather," it should have been, "particularly in wet weather."

I see, in a late number of The Cottage Gardener, page 177, that Mr. Turner—than whom there can be no better authority on all points relating to the cultivation of celery—in noticing my communication on this subject, has objected to what I have said in favour of the liberal employment of liquid manure, as being, in his opinion, "calculated to mislead;" for, he says, "his experience teaches him the possibility of giving a dose too much," and that "he is of opinion that too frequent and plentiful supplies may be given." Now, without necessarily admitting that I have overstated the advantages of this liquid to celery, I can quite agree with all that Mr. Turner offers in support of his opinion of my having done so; for, as a matter of course, "*too much*" of (even) a good thing is self-evidently bad, and I have nowhere stated or implied the impossibility of giving too much; but my error (not an uncommon one by the way), I conceive, consists in not stating distinctly what, or how often, and how much, was intended by such expressions as "*frequent* and *plentiful*"—terms which, unless further qualified, admit of too vague and arbitrary construction. It may, therefore, not be amiss to endeavour here to rectify this omission by specifying more exactly the frequency, as well as the quantity and strength, with which I am in the habit of using this valuable fertiliser to my celery crops. And this, as well with the view of attempting to reconcile the difference in our opinions, especially as those opinions are the result of our respective experience (though I by no means wish to claim for mine the importance which is justly due to Mr. Turner's more extended observations), as for the benefit of your less experienced readers, who may be interested in the subject.

From the time the plants are first set out, until they have fairly taken hold of the soil, and appear to be growing freely in their new quarters, I give simply pond or rain-water, and this as often as, from the surface of the trench becoming dry, they seem to require moisture. I then commence with the liquid manure, which I apply, on an average, once a week, taking care that the first few applications are considerably more diluted than the subsequent ones, about the strength of which I am not very particular, using it merely in the state of dilution in which it may happen to be in the main receptacle when required. This (the state of dilution) is, however, a point of considerable importance; and I can only enable you to judge of the average strength of mine by describing shortly of what it consists, and the method of collecting it, which are as follows:—In a convenient corner, adjoining the pig-sty, are two large hogsheads (each capable of containing upwards of 100 gallons), sunk two-thirds of their depth in the ground; into these is emptied, daily, all the house slop from the bed-rooms, and any dirty water which, in the various processes of cleansing, has been impregnated with soap or soda; also all the foul water and suds procurable at the fortnightly clothes-washing. Besides these two large receptacles are three smaller ones, buried brim deep in the soil, immediately outside the respective drains leading from the stable, cow-house, and pig-sty. These receive the liquid excretions of one horse, one cow, and two or three pigs; and when full—which, in wet weather, owing to rain and droppings from the eaves having partial access to them, is frequently the case—their contents are likewise added to the hogsheads; or, when the latter happen to be full, any surplus is poured over the manure heap, which is so contrived as, when saturated, to allow the drainage from it to run back into one of the three smaller tanks.

Now, it is the mixture of these various fluids, in the varying proportions in which they may chance to be, when required for use, that I apply to my celery-trenches; and, although it will be obvious that it must vary considerably in strength, according to the dryness, or otherwise, of the season, still it is generally of that medium degree of potency, that I can venture to use it with impunity, even to such vegetables as are generally supposed to be less tolerant of strong liquid applications than celery.

The quantity given at each dose is not always alike, and is regulated by the quantity each trench will readily imbibe, which is generally about five or six gallons to each side of a trench, seven or eight yards long; but this amount will necessarily vary, not only with the condition of the weather, but also with the particular texture of the soil in which the trenches are made. This last consideration is, I think, an important one; and it was in this persuasion that I was careful to qualify my remarks, on the liberal use of liquid, by the statement that "such, at least, was my experience, in the light porous soil of my garden;" for, I think, it will be admitted that it may be more freely administered, both as regards quantity and frequency, in a soil of this description, than on one of a stiff, tenacious, and less hungry nature. The staple composition of the soil of my garden is a light, rich, and open sand, resting on a thick stratum of pure sand; and there is a quaint saying applied to this kind of soil, which not unaptly illustrates its character and avidity for moisture, *viz.*, "that it will bear a good shower every day and *two on Sundays.*"

I am glad Mr. Turner has given us the result of his only trial for prize celery. The simple fact of its having been grown to the enormous weight he mentions, is to me highly interesting, and a great triumph in horticulture; but, as a question of economy, and general utility, the end for which it is generally grown, will, perhaps, be better answered, by raising it of about half that weight; and if, as Mr. Turner admits, it may be grown five or six pounds by the double row plan I have recommended, I confess, I think it a high argument in favour of its adoption.—W. C. G.

EXTRACTS FROM CORRESPONDENCE.

Quickset Hedges.—You tell your correspondent, at page 204, that you never could understand what advantage was gained by planting on the side of the bank, and recommend planting on the top. Now, I have a neighbour who is very particular about his hedges, and successful in managing them. Between his fields he plants in single rows (as you advise) upon the flat surface, where the soil will admit of it, and upon a small raised bank, where it will not; but when he comes to his *roadside hedges*, he plants double rows of quick, one along the top, the other along the face of the bank next the road, and about midway between the top and bottom of the bank. The advantage of the latter plan is this: a single line of quick on the top, will, in a few years, in spite of all you can do to it, become naked below (This we deny. Ed. C. G.), and gaps are thus left for dogs, fowls, and small animals freely to pass through—a great annoyance if it encloses a garden—added to which, the face of the bank being exposed, is very liable to crumble down with frost, and children and larger animals will deface it. Now, a front line of quick cures those evils; and the young quicks, being cut back to two or three eyes, at the time of planting, will shoot thick and strong, protect the face of the bank, and, taking an upward direction, cover the gaps left in the top row, and unite with it to form a handsome and impenetrable hedge. In making these hedges, the plan is, when the bank is half raised, to lay in the first row of quicks on a straight ledge, sloping inwards and downwards; the remainder of the bank is then carried up, and the top row inserted, taking care, however, that the plants in the two rows stand opposite the intervals between each other. The lower quicks should be a year older, that they may grow faster, and incorporate sooner with the upper ones.

It now occurs to me, that your observation may have applied to *single*, and not *double-row planting;* and if so, these remarks stand for nothing; although I must add, that I believe it next to impossible to maintain for long a proper fence, with a single row, between a garden and public road; at all events, I have been preciously bothered with mine.—S. P.

Cochin-China Fowls.—Mr. Doyle's article in The Cottage Gardener for the 27th ult., induces me to trespass on your valuable time for a few minutes.

Has the Cochin-China fowl what is commonly termed five toes—*i.e.*, a rudimentary extra toe? From the figures introduced in the article above referred to, it by no means appears clear—the hen seeming to have five, the cock four. What is the colour of the legs, as this is usually considered a distinguishing characteristic in the breed of fowls? What may be considered as the average height of the cock, and to what point measured? I trouble you with these queries for the following reasons:—My son obtained for me, from a dealer in London of the name of Baker, a dozen eggs, at one shilling each, making with the carriage, &c., fifteen shillings per dozen; they were set under two different hens—five under one, seven under another; the five were not hatched, which was, of course, attributed to the circumstance of the hen not sitting close, as the seven were all prolific; but only two (fortunately, a cock and a hen) appeared to be at all of the character warranted; but the cock had five toes, and yellow legs—the hen four, and blue legs, the latter having also somewhat the character of the Malay fowl; she proved, however, an excellent layer, the eggs of the colour Mr. Doyle describes, *and several times laid two eggs in the twenty-four hours.* The others were of various characters, two evidently a cross of the *Black* Spanish, the others of a very ordinary description. I should not have named the dealer, but that, by an unusual act of discourtesy, he did not condescend to reply to a letter of inquiry for an explanation, and I, therefore, am inclined to doubt the truth of the breed of the two, which in many respects answer the description given by Mr. Doyle.—Edward Muggridge, *Ringstead, near Lynn.*

[We shall be obliged by any of our readers sending answers to us for these queries, because they will be interesting to many others, who are seeking from us further information relative to Cochin-China fowls.—Ed. C. G.]

Cockroaches.—Light-coloured Fuchsias.—You will find red wafers laid in the places that are infested with cockroaches to be the best poison for them. *Napoleon* and *White Eximia* are better light-coloured fuchsias than either *One-in-the-Ring* or *Dr. Jephson.*—H. J. Greenhagh.

Semi-transparent Covering.—In some parts of your excellent Cottage Gardener are receipts for making a transparent cloth for covering pits and other purposes. Most of these contain resin, which makes the cloth crack. The following receipt used to canvass will be found good. The cloth may be rolled up or pressed, and it will never crack. Stretch the cloth tight, wet it with a watering-pot, and paint it, *while wet,* with linseed oil, 1 qt.; litharge, ¼ oz.; made quite fine. Colour may be mixed with the oil, if desired. Two coats are sufficient. This is completely waterproof, and answers for tarpaulin, rick-cloths, &c. The canvass, or cloth, should be tolerably wet, only so that the water does not stand in pools on it when painted. This is the way that common oiled-silk is prepared.—Verax.

Poultry Losing their Feathers. — Observing that S. W. (p. 192) complains of his fowls partially losing their feathers, I also have to state that my fowls were *nearly naked* this season, and I could not account for it, unless it was from the Indian corn, which might be too heating for their constant use. I now give them boiled barley, and I never saw them in finer feather.—J. M.

Stupefying Bees with Chloroform.—I have noticed several inquiries in your papers from correspondents, respecting the application of chloroform for stupefying bees, and having waited in vain for some communication from an able hand, I will now give you mine. I wished to remove a young swarm to another hive, and determined to try the effect of chloroform, which I placed on a sponge, and inserted into one of the long, perforated flue-ventilating tubes—into the bottom of the hive—and its effect was soon apparent by the dropping of the bees on to the floor of the hive; but, upon shaking the hive, the majority were too lively to be meddled with. I expended about two large wine-glasses of chloroform on them, but failed to produce the desired effect upon the whole swarm, and therefore had to use other means.—W. W. K.

Dutch Method of Growing Asparagus. — We English eat only the *green* part, the Dutch eat also the *white.* Throughout Holland, so far as I could judge from a passing tour, no green asparagus is grown; all the heads served up at the hotels are white: they are of excellent flavour, and equal to those produced in England. It was sometime before I could comprehend how this white kind of asparagus was grown; but happening to visit the little village of Broek (a village, by the way, into which no horse, cart, or dog, is allowed to enter, and where the front doors of the houses are never opened except on a wedding or funeral), and here, in one of the principal gardens, I asked the gardener for an explanation; he took me to the asparagus beds, but I saw nothing, save that they were narrow, slightly rounded, and smooth as a slate. Where is the plant, I inquired? He immediately squatted down, removed a little of the soil with his finger, and produced to me a fine white stem, like a small wax candle. The beds were in full crop. The Dutch grow the asparagus as an *underground* esculent, never allowing it to appear above the surface; a slight protuberance in the soil shews where the plant is rising, and, by this index, a practised eye knows what is fit to cut. I jocosely queried with the man if our English mode of growing asparagus was not the best? He thought not, and maintained that in proportion as the stem appeared above the soil, it hardened beneath it; and thus, whilst we get only half the plant, they secured the whole. Which, then, is the best method of growing asparagus, the Dutch or English? Or, is the Dutch a different variety.—S. P., *Rushmere.*

[The varieties are the same, nor do we think this Dutch mode of growing asparagus desirable. It causes much more trouble in the cutting, and diminishes the flavour. We shall have a much better mode to communicate before the asparagus season again arrives.—Ed. C. G.]

TO CORRESPONDENTS.

⁂ We request that no one will write to the departmental writers of The Cottage Gardener. It gives them unjustifiable trouble and expense; and we also request our coadjutors *under no circumstances* to reply to such private communications.

Geraniums (*Verax*).—Can any of our correspondents say where plants may be had, or cuttings obtained, in the spring, of the following varieties:—Judi, The Salmon, White Scarlet, or Horse-shoe White; Queen of Portugal, Unique, Lady Mary Fox, Royalist, Punch, and Gem of Scarlets?

Cochin-China Fowls (*Tooting*).—Our correspondent says, that these may be procured from Mr. J. J. Nolan, poultry-fancier, Bachelor's-walk, Dublin, at 30s. each. This is a reply to many inquiries.

Allotment Gardening (*N. I. S.*).—We know of no cheap publication such as you require. It is much needed. You will see what to do, in March, with your *Tigridia pavonia* bulbs, if you will refer to p. 137 of our present volume. For *Gooseberry pruning*, consult Mr. Turner's very full essay on the subject, at p. 303 of vol. i.; and *Currant pruning* is given at p. 12 of the same volume. Your other question next week.

Vinegar Plant (*M. F. G.*).—Can any one inform our correspondent where he can purchase one? The leaves of the *Green Beet* may be boiled as spinach, but they are not so good as those of the *White Beet*. You ought to have received a copy of The Domestic Economist. Do you receive your numbers through a bookseller?

Hothouse, Greenhouse, and Bath (*A Reader*).—You ask whether all three of these structures, each small, could be heated by one boiler, and the boiler be kept hot by means of gas? To both questions we answer—Yes; but it would require a peculiar, though easy arrangement, and would not be economical. We do not know of any such arrangement in operation.

Edible Fungi (*J. C——n*).—We are quite aware that this subject has attracted attention, and we are also aware that, in warmer climates, some prefer other kinds before our common mushroom. But we cannot recommend a similar preference; and he would be a rash and untrustworthy writer who acted otherwise. The deadly and the harmless (*if any fungus is harmless*) are separated by such slight differences, and we are so totally without information as to whether a fungus, edible under certain circumstances of climate and soil, may not seriously change its secretions, under an altered state of those circumstances, that we can do no more than warn you, and all our readers, from such experiments.

Vines in Pots (*X.*).—You will find the principles of vine-forcing in pots in our present number. Of the three sorts you name, we should choose the *Muscat of Fontainebleau*, from what we have heard of it. *August Muscat* is said to be a sly and slender sort. *Golden Muscat* we are ignorant of, unless you mean *Muscat of Alexandria*.

Bark-Bound Pear-trees (*W. H. G.*).—The stems may be scraped and cleared of any mossy gatherings, and three ounces of soft-soap, made in a lather, added to a gallon of stable or cow-house urine. Brush this well into every crevice, and pour plenty of dung-hill drainings over the roots immediately, first boring several holes (to receive it) with an iron bar.

Apple-tree Cuttings (*S. Hayes*).—Apple cuttings strike with the greatest ease, either in pots or out. Any ordinary garden soil will do. They strike very rapidly in dung-heat frames, or even in greenhouses. Any first-rate kinds, such as you will find in our back numbers, will answer. Cuttings made about fifteen inches long, three or four of which must be in the pot, letting the cutting touch the bottom.

Stocking Fruit Garden (*Salisbury*).—Your query would require a long paper to answer it in full. Our back numbers are replete with information of the kind. You will find select lists of fruits, commencing at page 32, and running through a few following numbers. Amongst pears for espaliers, do not forget such as Althorpe Crassanne, Dunmore, Fondante d'Autumne, Louis Bonne of Jersey, Maria Louise, Hacon's Incomparable, Beurre Langeliar; also, Orpheline d'Engheinne, Josephine de Malines, &c. Apples, also, such as Kerry Pippin, the Nonpareil, Pearson's Plate, Ashmead's Kernel, Sturmer Pippin, Ribstone Pippin, &c. &c. Wall-fruits will be found in previous numbers. In all your proceedings, pray let us beg of you to attend to principles connected with root culture. One hour's keen examination of what runs through our previous numbers will set all right.

Heating, &c. (*A Novice*).—Before deciding upon your stove, see what is stated, p. 216, which partly meets your case. We can see little difference in the mode of action of Price's, Herbert's, and Walker's. They will all require piping to convey away the smoke; and though being moveable is an advantage, there is the trouble of unfixing, fixing, and the *botheration* of the escape of smoke, gases, &c. 2. If you should decide upon having one, it ought to stand as near the door as convenient, that the heat may be equally diffused. 3. The chimney outside, if seen at all, might be surmounted with a chimney in make the same style as the building. 4. Do you mean that you are to be charged 4s. per foot *merely* for the putty and the trouble of glazing? 5. The soft-water drain might be so far constructed as to furnish you with a cistern for watering, when the rain that fell on the roof would not be sufficient. 6. The roof may be curvilinear as well as straight. The squares of glass would require to be shorter, or have them bent on purpose. 7. Your stage should be in unison with the roof, and high or low, according to the nature of the plants you intend growing. 8. Many of the plants mentioned, p. 167, would suit you for a commencement; and lists of fuchsias, cinerarias, &c., have been given. You had better commence with soft border plants first. 9. There is nothing to prevent your having a *vine* or two, or, if you use other means of heating, making it partly a forcing-house. See Answers to Correspondents, p. 204.

Honeysuckles, Jasmines, Syringa (*D. P——t*).—We presume you mean the hardy varieties of these. If so, the best time to bud them is in summer, when the bark runs; and the best time to graft would be the spring, just when the sap is getting into motion; choosing the common woodbine as a stock for the first, the common white jasmine for the second—or rather *heterophyllum*, and the common lilac for the third. Of course, you would only think of doing so in the case of the weaker and scarcer kinds, as most of the two first will strike freely, if planted at any time, from cuttings; but chiefly in the autumn, under a hand-light, in a shady place; and the third is, generally, easily procurable from layers or suckers. See what Mr. Beaton says on Climbers, Greenhouse and Forcing-house. See, in the meantime, what is stated, p. 204. The subject will, if possible, be adverted to in detail before long.

Various Questions (*L. M. and M. M.*).—1. The *Cactus*, kept in a warm room, and watered up to this time, should now be kept dry for a couple of months, if it is desired to flower next summer. It should scarcely have known the taste of water for two months past. 2. *Sand* from the Severn will do as well as any other river sand for striking cuttings and rooting leaves, provided it is clean, and not procured too near the Bristol Channel to have a dash of salt in it. A little fine pit, or silver sand, to dust the surface, will be an advantage. 3. Many *leaves will form roots* besides fuchsias; but many that will form roots cannot form enough of organizable matter to emit fresh buds and shoots. In the case of the Verbenas to which you refer, as they strike so freely and quickly from cuttings, consisting of one or two joints, the attempt to grow them from leaves would be more interesting than practically useful. 4. The *room* in which your plants are kept must be well protected, or they would, in such weather as we have lately had, require fire on *Sundays*, as well as other days. 5. In fine weather, the fire, *on other days*, had better be dispensed with, and air given; or, if the fire must be there, more air must be given; and, even then, the moistening of the foliage will often be attended with advantage. 6. We presume the want of air, and light, is the reason why your *Geraniums get weakly* and drawn, and the cause why your Verbenas die; though being lifted out of the border late was rather against them. Try a pot or two of younger plants next time. 7. The want of air, and watering over much, was most likely the cause of the death of your *Mesembryanthemum*. Keep all succulents dry in winter. We presume that the table for your plants is as near the window as possible during the day. 8. *Hyacinths* will do admirably, either in pots or glasses, in such a room. They will do little good the second year 9. See that the *Pyrus* (*Cydonia*) *Japonica*, has a sufficiency of soil against the brick house, as it is not at all particular. 10. Whether the piece of *Scarlet Anemone* will bloom, will depend upon its size, and as to whether it contains flower buds—it most likely will.

Hot-bed for Cuttings, &c. (*N. I. S.*).—If the materials for the small hot-bed have been well worked, as before directed, the bed may be made up, and the materials well put together, that the bed may settle down even. All being made neat and snug, the frame may be put on, and the earth, or sifted coal-ashes (which is better), may be put on at the same time the bed is made, which will forward the use of the bed at least five or six days; for as soon as the heat is up, and the earth warm enough, you may commence placing in your pots of cuttings, the earth or ashes to be placed over the bed 6 to 9 inches thick, to plunge the pots in.

Asparagus (*W. W. X.*).—Plant two or three-year-old plants this spring, and there will be no occasion for you to sow seeds.

Paint (*A. W.*).—The cheapest and best application for your garden palings is gas-tar, applied very hot, and very fine sand and lime rubbish dredged over it whilst fresh. You may obtain *plants* of most kitchen and flower-garden articles either from florists or market-gardeners.

Forcing Young Vines (*Lucubratory*).—Those planted last spring must not be forced this year, but be allowed to break with the natural warmth of the season.

Forcing Hydrangeas (*Ibid*).—These may be introduced into heat now, or at any time between this and their natural time of starting.

Melon (*Ibid*).—We know of no such melon as "The True Prussian;" and you probably mean the *Persian*, of which there are many varieties, such as the Hoosainee. They can be obtained of the seedsmen. They are more highly-flavoured, but more tender than any of the other kinds.

Heating Pit by a Stove (*W. W. X.*).—If you take care that the gases given off by the stove are all carried away into the open air, without mixing with the air in the pit; and if you are equally careful that the burning fuel is supplied with air from the outside of the pit, we think your plan will succeed. It is ingenious, and we shall be glad to know from you how it answers. The stove must be against the side of the brickwork, for the sake of feeding the fire with fuel. There is something wrong with the roots of the *Chinese Primrose*, of which you sent the imperfectly developed leaf.

Screening Peach Blossoms (*A Subscriber, Lancaster*).—Nets, with half-inch meshes, will do for the purpose, we are told; but we prefer them much finer; and, indeed, use canvass ourselves. The screens should be kept on at night, until the fruit is well set. It is not necessary to screen during the winter, nor until the blossoms shew symptoms of opening. If you obtain "scores of pounds" of *early potatoes* in your garden, sloping to the south, at Lancaster, by the last week in May, you are quite as early as we are in the south of England.

Sprouted Potatoes (*F. W.*).—You have kept your ash-leaved kidneys in too warm a place, as they have sprouts from three to six inches long. Do not rub these off, but plant them uninjured *now*, as soon as you possibly can; putting them in so that the top of the sprouts is three inches below the surface.

Pruning Gooseberries (*Rev. C. W. L.*).—This having been neglected had better be done forthwith. Answers to your other questions next week.

Consequences of a Stove in a Greenhouse (*Rev. S. P. F.*).—A chunk stove being introduced, and left in your greenhouse for twenty minutes, during a frosty day, your plants consequently became shrivelled, and the leaves look scorched, "the most hardy having suffered the most." It is very evident that the temperature had fallen below the freezing point in your greenhouse, and the sudden and excessive elevation of temperature produced the consequences you describe. The carbonic acid given out by the stove, of course, added to the injury. You can do nothing but remove the leaves as they die, exclude frost, and merely keep the soil damp, as if the accident had not happened. In the spring you will see which are fatally injured.

Names of Plants (*Lucubratory*).—We cannot tell the name of your canna-like plant, from the two leaves sent. (*M. Marshall*).—We think yours is *Corræa pulchella bicolor*. The plant from Godalming is the Great River Horsetail, *Equisetum fluviatile*.

Hydrangeas (*Rev. H. N.*).—These, if in pots, should not be cut down in winter, unless they are assisted to make an early spring growth. Strong old plants may be cut down with advantage, and they will come into flower next autumn, after those which were not cut down.

CALENDAR FOR FEBRUARY.

GREENHOUSE.

AIR, admit freely among hard-wooded plants, such as Erica, Epacris, Diosma, &c., when the atmosphere is clear, and the outside temperature from 35° to 40°. In damp, foggy, or frosty weather, it is better to use little firing, and keep the house more close, unless you have the means of heating, and so far drying, the air before it is admitted—the drying, of course, to take place only when the air is loaded with moisture. All these plants will now want more water, but do not give it in driblets; after doing it thoroughly, wait patiently until the soil is getting dry. AZALEAS and CAMELLIAS: place those swelling and bursting their buds in the warmest end of the house, and you may remove them to the coldest end when in bloom. Supply such rather liberally with water. Those to be retarded, keep as cool as possible. BULBS, CINERARIAS, and PRIMULAS, in flower, assist with manure-water; the double Chinese primula give a warm corner, as it is (especially the white) a splendid object when well grown. CALCEOLARIAS and GERANIUMS, keep at the best place for light and heat. All these soft-wooded plants require more heat than the hard-wooded ones: the former shift as necessary. The forwardest of the latter, stopped and shifted before Christmas, tie out, and train. Place in flowering-pots those stopped some time ago, and now breaking; and stop more young plants for succession, to be shifted when the buds have broken again. FUCHSIAS, start some favourite kinds, if you can, in a nice, sweet hotbed, as at this season they stand heat well. Cut them well down, and thin the shoots afterwards to as many stems as you may require. Repot those for the greenhouse, by the end of the month, and prune unsparingly: those intended for cottage windows had better remain in their winter quarters for another month. The same HOTBED would do for *seeds*, *cuttings*, &c; and also for starting some *Achmines*, *Gesneras*, and *Gloxinias*—the two former either in the pots in which they grew, or by removing the tubers, and placing them in pans with light earth, until they grow a little; the latter either in their late pots before they spring, or, what will do as well, in fresh pots and soil; so that, whenever they start, they take hold of the fresh material. For FIRES, PROTECTION, DRESSING, and CLEANING, see last month. R. FISH.

FLOWER GARDEN.

ANEMONES, sow; finish planting, b. and e. ANNUALS (Tender), sow in hotbed; admit air to daily; water slightly; cover with mats the glasses at night; (Hardy), sow in borders, e; for early blowing, sow in pots in a hothouse. AURICULAS, dress, and attend carefully those under glass, as the buds appear. BIENNIALS (Hardy), sow, e. BULBS, finish planting. CARNATIONS, plant, and shelter from cold winds. DAHLIAS, sow, and place tubers in hotbed, to break buds for slipping. DRESS borders generally. EDGINGS of BOX, &c., may be planted and repaired. (See Jan.) EVERGREENS, plant in mild weather, e. GRASS, roll and sweep weekly. GRAVEL, roll, and weed in dry weather, weekly. HEDGES (Deciduous), plant, b.; (Evergreen), plant, e. HYACINTHS, shelter, for they begin to appear. MIGNONETTE, sow in pots, and place in hotbed, or hothouse, and greenhouse, for succession. NEATNESS, attend to every where. PERENNIALS (Hardy), sow, e.; plant suckers, slips, and partings of roots; (Half-hardy) uncover, if frosts gone. PLANTING of flowering shrubs, complete. POLYANTHUSES, sow; earth up with rich compost. POTTED SHRUBS, prune, shift, and dress the soil. PRUNE, the later it is done the more it checks the blooming. RANUNCULUSES, finish planting, b. and e. ROSES, manure with cow-dung. SOWING of tree and shrub seeds, complete generally. SUPPORT, with stakes, &c., newly-planted shrubs. TULIPS, shelter as they are now appearing. TURF may be laid.

Climbers, such as honeysuckles and jasmines, should be pruned and trained in the early days of the month. *Reduce* to moderate-sized patches such plants as phloxes, asters, veronicas, &c., otherwise they will occupy too much space, injure their neighbours, and harbour vermin. *Herbaceous plants* should be planted out from nursery beds into the borders without delay. *Half-hardy* shrubs, &c., may have their shelters partially removed, closing them up again at night, according to the mildness or inclemency of the season. D. BEATON.

ORCHARD.

APPLES (wall and espalier), finish pruning, b.; plant; sow for stocks. APRICOTS, finish pruning and protect carefully, b.; plant. BERBERRIES, plant. BLOSSOMS of early wall fruit, shelter in frosty and windy weather. CHERRIES, finish pruning and training; plant; graft, e. CHESNUTS, plant and sow. CURRANTS, finish pruning, b.; plant. CUTTINGS, plant, of gooseberries, currants, figs, filberts, mulberries, vines, &c. DRESS and fork over the earth of the borders, &c. FILBERTS, plant, hang male catkins, &c. GOOSEBERRIES, finish pruning, b.; plant. GRAFTING, commence, if mild, e. SCIONS, collect ready for use. LAYERS, make of figs, vines, filberts, mulberries, and muscle plums, the last for stocks. MANURES, apply where required. MEDLARS, plant. MOSS, on trees, destroy with brine, or urine. (See Jan.) MULBERRIES, plant. NECTARINES, finish pruning, b. ORCHARD TREES, finish dressing. PEACHES, finish pruning, b. PEARS, sow for stocks, &c. (wall and espalier); finish pruning; graft, e. PLANTING, generally complete, e. PLUMS (wall and espalier), finish pruning; plant; graft, e. PRUNING, finish generally. QUINCES, plant. RASPBERRIES, finish pruning, b.; plant; dig between and remove suckers. SERVICES, plant. STANDARDS, finish pruning. STRAWBERRIES, clear and spring dress, and plant in moist weather, e. SUCKERS, for stocks, plant. TRENCH ground for planting. VINES may still be pruned, b.; cuttings plant. WALNUTS, plant and sow.

In collecting *scions for grafting*, remember that the principle is to cut them before the sap begins to circulate. They should be kept in a cellar, or other cool damp place out of doors, until the sap in the stocks for which they are destined is in motion. R. ERRINGTON.

FORCING AND PLANT STOVE.

AIR, admit freely when weather permits. BULBS, and other dry roots for succession, plant, b. BOTTOM-HEAT, attend to (See Jan.). CHERRIES, in blossom, shade when sun is bright, a thick net answers well; disbud as required; day temp. keep about 60° maximum; night 45°. EARTH of borders, &c., stir occasionally. FIGS, when in leaf, require a day temp. about 60°. FLOWERING shrubs in pots, introduce for succession. HEAT must advance with light. KIDNEY BEANS, provide successions; use richer soil as the day lengthens (See Jan.). LABELS, renew, where required. LEAVES, keep cleaned; decayed and weeds clear away constantly. LIQUID-MANURE, apply to the roots of fruit-trees in forcing, if dry. PEACHES, and other fruits in blossom, should not be syringed; disbud; thin when too thick, and as large as peas; day temp. 60°; night 55°. PINES, remove from bark-bed to pots; and generally regulate. SECURE ATMOSPHERIC MOISTURE. STRAWBERRIES, in pots, introduce for succession; bottom heat is useful; see that those in reserve are not injured by frost. THERMOMETER, for most stove-plants, may be at 70°, during mid-day, if bright. TOBACCO, give fumigations weekly, or oftener, if insects appear. VINES, treat as in Jan.; do not syringe whilst in blossom; thin berries; day temp. 70°; night 60°. WATER, give more freely than last month; keep in open pans, over pipes or flues, constantly. WATCH sedulously for the green fly and red spider; against the latter, sulphur and moisture are the best preventives, as well as cure.

GLOXINIAS, GESNERAS, and ACHIMENES, love atmospheric moisture, but the leaves will become spotted, if the sun shines brightly upon them while moist. It is now a busy time: *shifting*, *top-dressing*, pruning, and training, must be practised generally throughout the stove plants, wherever necessary. The *air* must be kept moister as heat and light increases, not only after shifting, but to answer the demands of the plants. *Sowing* exotic seeds, as the month closes; and propagation of cuttings attended to. R. ERRINGTON.

KITCHEN GARDEN.

ARTICHOKES, defend from frost. ASPARAGUS, plant in hotbed, and attend to that forcing. BALM, plant. BEANS, plant; earth up, and transplant from frames, e. BEETS, sow a little for early use: plant for seed and dig up for storing any left in the bed. BORECOLE, sow, e. BROCOLI, sow, e. BURNET, sow, e. CABBAGES, plant; sow; and plant for seed. CARROTS, sow in a hotbed, b., to draw young; plant for seed, e. CAULIFLOWERS, in frames, stir earth about; look for slugs, &c.; plant in borders, if mild, e.: sow, m.; prick out. CELERY, dress and earth up; sow in a hotbed or warm border, e. CHERVIL, sow. CLARY, sow, e. COMPOSTS, prepare and turn over. CORIANDER, sow. CORN SALAD, sow. CUCUMBERS, attend to those forcing; prick and plant out; and sow in hotbeds. DILL, sow, m. DUNG, prepare for hotbeds. EARTHING-UP, perform when necessary. ENDIVE, transplant in frames; blanch. FENNEL, sow or plant. GARLICK, plant. HORSE-RADISH, plant. JERUSALEM ARTICHOKES, plant. KIDNEY BEANS, sow in hotbed, &c. LEEKS, plant for seed; sow, e. LETTUCES, transplant from frames, e.; sow in hotbed, b.; in border, e.; prick out in hotbed. LIQUORICE, plant and dig up. MELONS, attend to in hotbeds; sow; and prick out. MINT, force in hotbed; plant. MUSHROOM BEDS, attend to; make day temp. 60° to 65°. MUSTARD and CRESS, sow, e. ONIONS, sow main crop, m., if soil light and situation warm, otherwise defer this till next month; clean winter crop; (potato), plant. PARSNIPS, store winter standing; plant for seed. PEAS, sow; earth up; stick; plant in hotbeds, b. PENNYROYAL, plant, e. POTATOES (ashleaved), plant in hotbeds and borders; start others in any warm place for future planting. RADISHES, sow in hotbeds, b., and in open ground, e. RAPE (for salading), sow; (Edible-rooted), sow. RHUBARB, sow in peat, for future transplanting. SAGE and SAVORY, plant, e. SALSAFY, sow, e., in small quantity, for early use. SAVOYS, sow, m. and e. SCORZONERA, sow, e., in small quantity, for early use. SHALOTS, plant. SKIRRETS, sow, e. SPINACH, weed; sow, m. SORRELS, sow and plant, e. TANSY, THYME, and TARRAGON, plant, e. TURNIPS, plant for seed; sow, e. VACANT GROUND, dig; weed, &c.

In sowing *Radishes* this month, if a sheltered south border is selected, and the surface is covered with ferns, reeds, or straw, the crop will be almost as early as that from seed sown in frames. *Garlic* and *Shalots*, being very liable to decay if excessive wet weather occurs, should be fixed on well-drained ground, on the top of ridges, and be manured with charred vegetable refuse. Smooth the surface of the ridge, scatter over it some charred refuse and a little lime, and then merely stick in the end of the bulb. In light soils, plant in November or October. *Spinach* in drills may be advantageously sown now, and at all times between every two rows of Peas. The ground is thus economized, and the shade from the peas continues the spinach longer in a state fit for table use.

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WEEKLY CALENDAR.

M D	W D	FEBRUARY 7—13, 1850.	Weather near London in 1849.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
7	Th	Sea Curlew goes.	T. 46°—38°. S.W. Fine.	31 a. 7	58 a. 4	4 5	25	14 26	38
8	F	Small Eft in ponds.	T. 51°—32°. S.W. Rain.	30	v	4 57	26	14 29	39
9	S	Wild Goose goes. [Goose goes.	T. 49°—33°. S.W. Fine.	28	1	5 43	27	14 31	40
10	Sun	Shrove Sun. Q. Vic. m., 1840. Grey Lagg	T. 52°—25°. S.W. Fine.	26	3	6 24	28	14 32	41
11	M	Primrose flowers.	T. 51°—22°. N. Fine.	24	5	7 0	29	14 32	42
12	T	Shrove Tuesday. Blackbird's song begins.	T. 44°—21°. S.W. Fine.	22	7	sets	●	14 32	43
13	W	Lent begins. Ash Wed. Partridge pairs.	T. 42°—24°. W. Fine.	21	9	6 a 33	1	14 31	44

Quinquagesima, or Shrove Sunday.—The first Sunday in Lent (which this year occurs on the 17th instant) having been distinguished as *Quadragesima*, or fortieth—for reasons to be explained next week—the Church appropriated the three weeks preceding to the gradual introduction of the Lent Fast. Having so appropriated them, the three Sundays in them received names significant of their situation. Thus, reckoning by decades, or tens, the Sunday preceding Quadragesima was called *Quinquagesima*, or about the fiftieth day before Easter; the second *Sexagesima*, or sixtieth; and the third, *Septuagesima*, or seventieth.

Shrove, or Collop Monday, is so called because eggs and *collops*, or slices of bacon, were the usual flesh-meat partaken of upon this anniversary, to avoid the necessity of cooking a joint just at the commencement of the Forty-days' Fast. It is synonymous with the *Carnival*, and all its follies, still celebrated in Roman Catholic countries, and which name is a corruption of the Latin words *Carni vale*, and literally means Good-bye to flesh!

Shrove Tuesday, *Fasting Eve*, or *Pancake Tuesday*, are names referring to our Saxon ancestors' word for confession (shrive or shrift); to its being the evening before the commencement of the Lent fast; and to the prevalent dish of the day. Why the day should have been made the slaughter-time of poultry—why cocks should have been thrown at, and hens thrashed to death with a flail if they had not commenced laying eggs by this day—seems unexplainable; and we can readily understand, therefore, why the French traveller concluded that "the English eat a certain fried cake on Shrove Tuesday, upon which they immediately run mad, and kill their fowls."

Ash Wednesday still retains the name given to it by our Roman Catholic ancestors, who had dust sprinkled on their heads by the priest, whilst he repeated the words, "Remember thou art ashes, and to ashes thou shalt return."

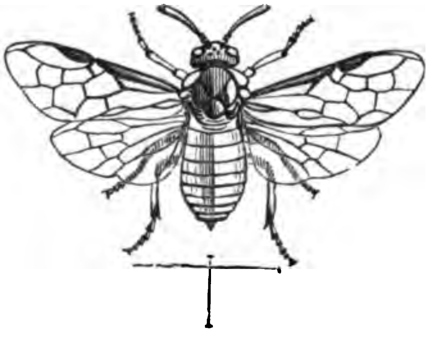
Meteorology of the Week.—The average highest and lowest temperatures of these seven days, during the last twenty-three years, are respectively 44.8° and 32.0°. During the same years there have been, during the same days, 74 on which rain fell, and 87 were fine. The highest natural temperature was 65° on the 10th, in 1841; and the lowest 3° below Zero, or 35° below the freezing point of water! on the 11th, in 1845.

Natural Phenomena Indicative of Weather.—Those best acquainted with *horses* have observed that they foretell the approach of rain by starting, and being more than usually restless, on the road. *Jackdaws* are also said to be more than ordinarily clamorous before rain. These birds, says Dr. Forster, frequent the society of rooks, going out with them to feed, as if being conscious of their greater sagacity in finding out, and their greater power in turning up their food, they wished to benefit by those advantages.

RANGE OF BAROMETER—RAIN IN INCHES.

Feb.		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
7	B.	29.500 29.443	29.786 29.697	29.993 29.890	29.272 29.177	29.959 29.950	29.932 29.818	29.574 29 448	29.997 29 818	30.396 30.308
	R.	—	0.11	0.26	0.29	—	0.08	—	0.25	—
8	B.	29.442 29.395	29.816 29.786	30.038 30.024	29.371 29.309	30.065 30.063	30.055 29.979	29.653 29.326	29.859 29.694	30.299 30.085
	R.	—	0.06	0.02	0.02	—	0.04	—	0.26	0.06
9	B.	29.952 29.645	29.795 29.512	29.966 29.892	29 185 29.164	30.093 29.934	30.195 30.113	29.419 29.358	29.096 29.027	30.463 30.380
	R.	—	—	0.11	0.06	—	—	0.40	0.01	—
10	B.	30.017 29.959	29.986 29.895	29.881 29.831	29.639 29.417	29.757 29.649	30.341 30.317	29.566 29.460	28.986 28.840	30.572 30.343
	R.	0.04	—	—	—	—	—	—	0.52	—
11	B.	29.866 29.657	29.985 29.970	29.976 29.859	29.937 29.764	30.216 29.880	30.133 30.070	29.868 29.673	29.548 28.984	30.880 30.773
	R.	0.04	0.14	—	0.01	—	—	—	—	—
12	B.	29.745 29.640	30.065 30.004	30.040 30.030	29.993 29.974	30.409 30.400	30.158 30.134	29.887 29.869	29.946 29.892	30.755 30.575
	R.	0.04	—	0.01	—	—	—	—	—	—
13	B.	29.669 29.313	30.180 30.020	30.010 29.873	30.090 30.073	30.238 29 755	30.137 30.005	30.026 29.882	30.051 29.936	30.530 30.510
	R.	0.01	0.04	—	—	0.30	—	0.26	—	—

Insects.—The Saw fly family (*Tenthredo*) is very apt to be mistaken for one very closely allied, also furnished with saws, with which to open places for the reception of their eggs, but called by entomologists *Hylotoma*. The species in this genus are larger than those of the Tenthredo, and are markedly distinguishable by having their antennæ three-jointed, those of the Tenthredo genus having nine at the least. The *Hylotoma rosæ*, or Rose-fly, is injurious to the rose in two several modes; it makes a long incision with its saw in the young shoots, during June and July, filling the wound with eggs, placed end to end, yet with sufficient space between each two to allow for their increase of size, as the caterpillars within them grow. These come forth in July and August, feeding upon the parenchyma of the young shoots, as well as upon that of the leaves This caterpillar is one of the very few in which pulsation has been observed. Having but a scanty stock of silk, this caterpillar weaves a very fine outer cocoon, in the form of an oval net, to exclude the ants, which would otherwise destroy it in the chrysalis state; and, with this net, spins one still finer, in which its body is wrapped whilst passing through that state. It emerges as the perfect fly in the following June; and appears as represented in our drawing, but of the size shown by the cross lines. The head and thorax are black; the abdomen, yellow; and a broad black margin is on the front edge of each fore wing.



Without waiting for further information, as the time for purchasing Parsnip and Carrot seed is at hand, we think it right to give the warning contained in the following letter. It is dated Jersey, January 19, 1850, from a writer of high scientific attainments, and is worthy of consideration :—

"My attention has been called to a parasite on the root of the *Parsnip* and *Carrot*, by a gentleman-farmer of this island, remarkable for his spirit of research, and anxiety for the improvement of this his native land. On his showing me the parasite attached, I recognised the scaly, tuberous extremity of an *Orobanche*, which had inserted itself into the side of the fleshy tap-root, and had, apparently, much reduced its size—giving a lanky appearance. The information he received from the farmer, on whose ground it grew, was, that “the bulk of the roots of *parsnips* and *carrots* attacked by this parasite was reduced in plumpness by one-half;” and, from the one I saw, I believe such to have been the case; and, in what remained, there was more woody-fibre, and less saccharine, and other nutritious matter, than in ordinary roots. I should have wished to reserve this communication until I had opportunity to make more minute inquiries, both as to the state of the affected roots and of the identity of the parasite, but as the season for issuing parsnip seed is approaching, time is precious; and I would request you to use your influence in persuading farmers—whose crops have suffered by this new pest—from sending seed of diseased fields into the market. The sufferer—a Jersey farmer—declared that the portions of his crops which were affected sprang from seed obtained in England; but Islanders do not easily overcome their prejudices.

“This *Orobanche*—which according to Vaucher's nomenclature, would be *O. Pastinaca*, or in English might be named Nicolle's Broom Rape, in compliment to the gentleman who called my attention to it—is new to me, although I had found an Orobanche growing on an *Eryngium maritimum* in this island, which I pointed out to the late zealous botanist Dr. Graham, of Edinburgh, when on a visit to Jersey. And I deplore the appearance of it the more, as parsnips and carrots are the only moist winter vegetables which do not communicate a disagreeable flavour to the milk of cows fed upon them. And I hope, that in extracting the pith of these remarks in an editorial notice, you will be able to check the progress of this new tax on the farmers' industry.”

Many of our readers will not understand what is the *Orobanche*, or Broom Rape, and, consequently, will be unable to determine whether their parsnips and carrots suffered from its attack. It is a parasitical family of plants, which has not hitherto been thoroughly examined by botanists, and the only works upon the subject are Michelis' Treatise, published at Florence, in 1723, and Vaucher's *Monographie des Orobanches*, published at Geneva. in 1827. The very name is a mistake, meaning literally “The Vetch Strangler,” as if these parasites confined their attacks to the vetch or tare tribe. This is so far from being the case, that we see our Jersey correspondent found one on the sea holly (*Eryngium maritimum*); Dr. Rosburgh describes another as infesting the roots of the China sugar-cane; and others have been found on those of the common bramble, wood chervil, ivy, and other widely differing plants. In England, the most common species is the larger broom rape (*O. major*), whose pale purplish spike of flowers—not unlike that of some of the wild orchises—is very frequently seen in June growing close to the stem of the furze and broom, upon the roots of which it usually fixes, and preys upon their sap. The stem of this Orobanche is of a rusty colour, tinged with purple, about the thickness of a small finger, varies from six to eighteen inches in height, and is without leaves; the root is fleshy, sometimes bulbous, and when adhering to the roots of the furze and broom, “it claspeth aboute them with certaine lyttel roots on everye side, lyke a dogge holding a bone in his mouth”—(*Linn. Trans.*, 174). It belongs to the Didynamia Angiospermia class and order of the Linnean system.

It has been doubted, whether the Orobanches are really parasites, and it is quite certain that some of them are not, for they are found growing in soil away from other plants. But, on the other hand, it is equally certain that some are parasitical, and nourish themselves upon the sap of other plants. Thus, Dr. Turner, already quoted, says he has seen “all the natural juice clean drawn out” of clover by an Orobanche, probably *O. minor;* we have seen *O. major* without any fibres, but those imbedded in the roots of furze; and if this species on the parsnip and carrot, in Jersey, be established, another will be added to what Dr. Turner emphatically calls these “choke weeds.”[*]

We doubt the fact of the seed of the Orobanche being introduced with that of the parsnip or carrot; but, as prevention and every caution is desirable, we recommend those who grow them extensively to wash the seeds in two or three waters before sowing. The seeds of the Orobanche are probably in the soil, and if so, fallowing, and paring, and burning, seem the only remedies. We shall wait for fuller information before we notice the subject again; and we shall be obliged by any person communicating to us any relative facts.

With very great pleasure we give prominent insertion to the following excellent communication, and hope that our readers may be benefited by further instructions from the same intelligent writer:—

“In treating of the cultivation of plants not indigenous to this country, Mr. Beaton has judiciously referred to their original habitations, and to the peculiarities of their several climates. From personal experience I can attest, that his treatise on the Oleander is perfect, as I have seen it growing in its wild state in the south of Spain, under the precise circumstances described by him. Indeed I do not remember ever to have passed a bridge in Andalusia where the Oleander was not to be seen.

“From a little incident which happened to me in this country, I can also well understand the difficulty of obtaining bulbous roots at the Cape, at the proper time when their removal from the ground ought to be effected. Having seen in the south of Spain some very beautiful flowers of the Orchis, and having ascertained the locality in which they grew, I set out accordingly in search of them; but I was soon brought to a stand still from my horse sticking fast in stiff clay. I was, therefore, constrained to postpone my attempt until the ground became harder, which an Andalusian sun soon effected. Taking a second departure, I found the treasures I was in search of, and very beautiful things they were. I then marked the ground—intending to return later in the season, when the tubers might be safely removed. Towards the decline of the summer, I accordingly renewed my task; taking with me a bag to contain the tubers, and a garden-trowel to extract them from the earth—for I intended to bring away a mighty spoil. No difficulty was encountered in finding the land-marks I had previously placed; for I should explain, that the plants grew in vast uncultivated plains, which, probably, had remained untilled since the expulsion of the Moors. Having, then, found the plants, I proceeded to exhume them; but my first effort to force the trowel into the ground revealed the difficulty of the work I had undertaken. My strength of arm having proved insufficient to force the trowel into the earth, I therefore endeavoured, with the assistance of a large stone, to accomplish my purpose; and in this way I succeeded in obtaining a tuber or two. But my poor tool could not long sustain the heavy concussion of the stone, and was soon broken; I therefore returned *re infectâ*. It may be noted, that botanising in Andalusia is somewhat of a perilous undertaking, as the lonely traveller may expect to be suddenly surrounded by banditti, who, if they spare your life, will assuredly strip you of your property. The merchants at Gibraltar, when they ride into Spain, invariably carry a doubloon, as a douceur to these gentlemen.

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[*] Dr. Carpenter says that, “in many parts of Flanders, the farmers are altogether deterred from the cultivation of clover by one species of Orobanche, of which the seeds lie dormant in the soil, until it is made to support plants upon which the parasite can grow, and which it then attacks vigorously” (*Vegetable Phys. and Bot.*, 215). If this be the case with all the parasitic species, then either paring and burning, or sowing a crop on which the seeds will vegetate, and then sacrificing this, are the only apparent remedies.

"I wished to say a few words on the subject of grape-growing in Andalusia, but I dare not encroach farther on your indulgence: I will merely mention the remarkable fact, that the grapes which produce the magnificent raisins we receive from Malaga never receive a drop of rain from the time that the berries are formed, in May, until the period of their being gathered, in September. Except the dew, the only moisture they receive during the subsequent period of their growth is derived from the dank vapour of the sirocco wind."

Our worthy correspondent should be informed, that ground orchids, if possible, should be removed during the time they are in flower, and not like the irids, and other bulbs, when they are at rest. No one knew this better than our lamented friend, the late Mr. Cameron, of the Birmingham Botanical Garden, when he lived at Bury Hill, in Surrey; in which neighbourhood some rare British orchids have their only habitation. He was in the habit of gathering them for distant friends; and he always made choice of their flowering time for removing them.

We may further corroborate this testimony by the following quotation from the *Gardeners' Magazine* (vol. iii. 377), being the experience of Mr. W. Swainson, who said, "So far back as the year 1816, I brought with me on my return from Sicily, between 200 and 300 roots of species (of orchids) indigenous to that island; nearly the whole of which flowered the succeeding year, in the greenhouse of the Liverpool Botanic Garden, and in those of several of my friends. The method I adopted was as follows:—The plants were taken up in full flower, *at which period* the tuber or bulb for the following year had not begun to throw out its roots; the earth was carefully removed from the tubers, and the plant laid in a shady, cool, dry room, for about three weeks, when they were lightly packed with hay in a perforated deal box." In this assortment of Sicilian orchids were seven species of described orchis, five species of ophrys, and two species of serapias, "with three or four other species apparently new." In No. 150 of the Botanical Register (1827) it is said of these ground, or terrestrial, orchids, that Signor Mauri sent a collection of them from Rome to the Horticultural Society, in 1826; the roots dried, and packed in a paper like seeds; and that "they all succeeded perfectly, although when the roots arrived in England they were so shrivelled in appearance, that it was not expected that they would have survived." We hope this experience will not be lost on botanical collectors, like our correspondent T. O. And we wish it had been stated at what stage of their growth those roots sent from Rome were taken up to be dried. At any rate, it must be of considerable importance to the collectors of this singular class of plants to know that they can be removed while they are yet in flower.

THE FRUIT-GARDEN.

Miscellaneous Matters.—So many are the applications to The Cottage Gardener for advice of an off-hand character, that our weekly remarks will occasionally, of necessity, assume in this department a calendarial character; and it is very probable that this may be quite as acceptable to the generality of our readers, whom we are in duty bound to endeavour to please. We, therefore, this week handle a variety of matters—whether in doors or out of doors, matters peculiarly applicable to the season, for we must no longer think of winter; spring—cheerful spring—is at hand, giving activity to our hands, and elasticity to our spirits. Away, then, we say, with all lethargic feelings! and, once more, let us buckle on our armour and prepare in earnest for the coming campaign.

Protecting Apricots.—This valuable fruit is noted for early excitement; the first beams of a returning spring have a powerful effect on their blossom-buds. They are, moreover, very tender, as is well known; and our purpose in adverting to them is to show, that with all our caution we are not sufficiently careful in attending to the needs of this most valuable adjunct of the confectionary and the dessert. There can be no doubt, that were apricots throughout the kingdom protected as they ought to be, and as soon as they ought to be, the produce would be doubled; taking the average of seasons. Of course, we shall hear of expense. There is, however, such a thing as a niggardly economy—"spoil a ship for a ha'poth of tar," is an adage of as much weight now as it was a couple of centuries ago. Let any one consider the cost of building walls, of making borders, of procuring and carefully trimming the young trees, and then say if such expensive processes ought to be nullified by a trifling fit of economy, at the eleventh hour. Besides, canvas, bunting, or other ordinary covering, is not so expensive when its durability under careful management is taken into consideration. *Canvas*, for instance, will last for at least six years. It costs about sixpence per square yard; and an apricot tree occupying, we will say, twelve square yards, will, of course, require an outlay of six shillings; or, in other words, it will cost one shilling per annum to ensure a crop on the pet apricot, nursed, it may be, by the fire of the parlour, or other room behind the wall on which it was trained. Why, twelve good moorparks at one penny each will pay the cost; and surely a good covering will, if of any use, secure this amount.

We are perfectly aware, that many persons think that covering does no good; we confess to a very different opinion. We have covered the trees of all kinds for the last twenty years, and we have left every year a portion uncovered, but the *balance is much—very much—in favour of covering.* Anomalous results sometimes occur; after all our pains we may still miss a crop of fruit; and this, we fear, leads persons of impatient feelings, and under the sting of disappointment, to forswear all coverings. We, therefore, advise our apricot growers to be on the alert in the first week of February—to prune their trees and to apply some protection instantly.

Narrow-winged Red-bar Moth.—Before covering up, let us advise a strict search for the eggs of those caterpillars which so much infest the leaves of the apricot, and which are familiar to everybody who has cultivated this fruit.[*] This is an insidious enemy indeed, for the first leaves of the apricots are half devoured, in general, before the damage is attended to. And, again, all the worse, because hundreds—who do not, and indeed cannot thread that nicely graduated course, which in horticultural pursuits leads from causes, (apparently trifling in their commencement) to most serious effects—suffer this insect rogue to establish himself before they adopt precautionary measures. To return then to the eggs: they may be found at this period in little circular patches, of more than a score together, attached to the bark of the principal shoots. They require a good eye to hunt them out; and their appearance is that of an oval spot of paste, indented all over by the protuberant swelling of the advancing eggs; in fact, if a letter was sealed with a patch of paste instead of wax, and a very diminutive ladies' thimble used to impress it, instead of armorial bearings, such would convey an idea of this little dotted Pandora's box. Such we have been taught to consider the source of the apricot caterpilliar; and such, under that impression, we make a point of hunting for, as before remarked.

These things done, the covereng had best be applied every evening, unless very mild; but by all means, let it be drawn up in the day, if only for a couple of hours, unless the weather is very severe. We must now turn to matters connected with in-door affairs, or, in other words, forcing.

Fermenting Materials.—It is of the very first importance to all those who use fermenting materials in pits, frames, or houses, to have a mixture always ready, at this period above all others. Materials for the linings for hot-beds of cucumbers, melons, early-potatoes, &c., always retain a more durable heat by being mixed previously to use; and consequently, in an equal state of fermentation. We are now supposing the case of those who have it in their power to use a considerable amount of tree-leaves with their manure. A mixture of two-parts leaves to one-part stable manure, makes a valuable material. Our practice is, to suffer the manure in the stable-yard to accumulate about Christmas. When drawn into the garden-yard, it is all shaken over, and the shortest of the droppings taken out; these we, in general, employ as top-dressing on any of the vine borders immediately; and ultimately they get mixed up with the fermenting material, which warms and protects the roots of the vines. The remainder is thrown into a huge heap, near the leaves, and suffered to reach what is termed a fiery pitch of fermentation; when it is immediately broken up, and mixed with those leaves in the manner before described. Such a heap, in a sheltered nook, will retain its heat for a great length of time, and will answer almost any purpose—building either the body of the hot-bed or furnishing linings to it afterwards. When used as lining, a little long litter should be shaken over it when the linings have been disturbed, to prevent the leaves blowing about the garden.

Cucumbers.—We may as well offer a little advice to the amateur on this head. In our last notice of them (at page 163), we adverted to the building the bed; we now pass on to the ridging-out, confining ourselves at present to the dung-bed. As before observed, the chief danger to be apprehended is from *burning*—that is, from a greater heat occurring at their roots than they are able to bear. We cannot say precisely to a degree how much they will bear, but we can affirm that *ninety* degrees, in the soil where these roots are situate, is the greatest amount that should be allowed at any time—indeed, *eighty* degrees will be found amply sufficient at an early period, provided all other points are right.

Now, how to obviate this burning is the great point for consideration to the early forcer. We before said, that the dung must be well worked, and that it is good practice to introduce a column of unfermentable material beneath the centre of each hillock of plants. We may now suppose the bed ready for introducing the soil—and this is done piecemeal by most good cultivators, forming, at first, merely hills, as they are termed, in the centre of the bed; this enables the cultivator to apply water with facility, during the time the greatest violence may be expected in the fermenting naterials, which generally extends over the first fortnight or three weeks. In forming the hills, our practice is to excavate a considerable hollow immediately beneath each hill, half the depth of the bed; and this we fill up to the level with new turf, cut into squares of nearly six inches. These do good service in a variety of ways; they prevent fermentation of the bed from gathering too much power (which it is apt to do) in the centre of the bed, at the very point susceptible of most injury. They also form a secure drainage all through the summer, ensuring a draught of moisture through the centre of the bed in case of need. Added to this, they form an excellent pasture-ground for the cucumber roots, which readily penetrate them. These things done, we pile our composts in a compact hillock—the surface about ten inches from the glass. This is better than nearer, for when put too close, the frame soon wants raising; and this is an operation to be avoided in the earlier stages of forcing, as there is danger of rank steam getting in.

Cucumber Soil.—As to the best kind of compost, opinions vary. Many of our best cucumber growers, in late years, have used a compost for very early work composed, in the main, of a moory earth, of dark character. And no doubt the plan is good; for it would be folly to use the strong loamy composts, which are required to withstand the heat of a long summer. The moory soil being dark, readily absorbs heat; and it also readily parts with moisture; it is, moreover, a fine medium for the roots to penetrate. We use about half of such earth for the hills, the remainder being light loam and leaf soil; the latter not too much decomposed. As the bed requires successive earthings, we increase the amount of loamy soil; and thus the mass is a series of zones, each, from the centre outwards, of more solidity.

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[*] A figure and description of the moth, with its eggs, will be found at page 81. It will be seen that it is the *Pædisca angustiorana*—or, Narrow-winged Red-Bar;"—and we refer our readers to the account of its habits in that page.

Ventilating Cucumbers.—In concluding, we may offer advice about ventilation, and subsequent management. One of the great faults in bed-forcing, is the small amount of ventilation allowed. Some persons love to see their beds almost choked with steam. Now, under any circumstances of early forcing in dung-beds, there is sure to be no lack of atmospheric moisture; and he who persists in giving a little air by night as well as by day, will, in cutting fruit, by no means be behind the man who will have confined steam; albeit, the high-steamed plants may make a greater show in leaf during the earlier stages. Caution, however, is necessary in giving air in bright and windy weather; but this we need not dwell upon.

Every afternoon, if possible, the frame should receive a dash of water from a fine-rosed pot, or the syringe; the power of water in sweetening the atmosphere is enormous; care, however, must be taken, not to apply more to the *roots* than the needs of the plants require. As they grow and advance, a very frequent stopping must be had recourse to, and good linings applied, in order to be able to ventilate freely; taking care that the most powerful dung lays next the wood or brick-work, in order to make a warm atmosphere, without raising too severe a bottom heat. Care must be taken, also, whilst a lively bottom-heat prevails, to apply water liberally close to the frame inside.

It should be understood by the tyro in cucumber forcing, that the oftener the linings are turned the better; a still, mild day, should be chosen for the purpose. In fact, the linings should be kept in an equable state, approximating the character of the dung in the first working, previously described; water, therefore, will be requisite in the various turnings and additions.—R. Errington.

THE FLOWER-GARDEN.

Lawns.—As soon as the lawns are dry after the January frost, the worm-casts should be levelled down with hard brooms, or old stumped rakes; or, in large places, by a bush-harrow drawn by a horse. This last-named is the way we brush over the grass here at the end of winter, and is very effectual if the "bush-harrow" is properly made. Ours is finished after this manner: a common wooden hurdle is laid down horizontally to the line of draught, and then covered with the tops of thorn bushes not much stronger than the tops of common pea-sticks, by wattling the ends between the bars of the hurdle, and letting the ends of the bushes lie over each other like the thatch on a building, until the whole face of the hurdle is covered, and two feet of the brushwood is out beyond the end of the hurdle. This makes a powerful brush, and the very best instrument to scratch a mossy surface with. After two turns of this harrow—one along and the other crossways—the grass should be well swept, and then rolled; or, if any bare parts are thin of grass, a little seed of the white and small yellow clovers should be scattered before the roller. I have heard an objection made to sowing clover seeds till April, but that must refer to tilled land, as I have sown clover seeds over a grassy surface at all seasons—from the end of September to April—and I never saw any difference in the result.

It is an excellent plan to give some kind of *dressing* to all grass under the scythe; any time in February; and just after this rolling is the best time for it. Even for good land, where the grass grows strong without any artificial assistance, I would recommend some poor sandy compost for keeping a solid smooth bottom under the scythe, and when a good bottom of moss is not present, this is more necessary to render the grass soft and carpety to walk on. For poor land, the best dressing is fine sifted coal ashes; and if they are dry under cover, they will absorb a large portion of some liquid manure; and that it is by far the easiest way to enrich a poor spot of grass. Old tan is also a good dressing, and so is the top half-spit from the flower beds; but rough composts of that sort should be laid on before the brooms or bush-harrow were applied.

Walks.—After the grass, the walks come in for an annual dressing; but as the walks, ought always to be in trim order, and as they may be made or repaired at any time, I shall pass them over to-day with merely stating, that all the new walks which have been founded here during the last half-dozen years, are very differently made to any that have been hitherto recorded; and they proved so good and economical, that we have been engaged part of this winter in renovating most of the older walks after the same manner; and that I shall shortly write a paper solely on the formation of walks, roads, and their keeping.

Flower-Garden Stock.—Early in February is the usual time to look over the stock of half-hardy plants for filling the flower-beds next summer. It is true, that March is time enough for this, where means are short; and that others begin propagation at the commencement of the new year. Here—where we use as many of these things as most people—we commence by preparing a large mass of dung and leaves about the middle of December, and by removing our verbenas, and things of that sort, into some of the hothouses about the middle of January, so as to make a growth fit to get cuttings from before the middle of February, by which time our heap of dung and leaves is settled down in the shape of "a good hot-bed," or rather beds, inside of a range of deep brick pits, with a circle of hot water pipes round them; and in six weeks, or by the end of March, we generally strike off the bulk of our next summer's supply. The number I need not say, or even allude to, more than this, that although our machinery for this manufacture of flower-garden plants are nearly perfect, we are generally as much pinched for room and pots—before we can trust the hardier things into temporary shelters out of doors—as any reader of The Cottage Gardener can be; and this is the case with gardeners all over the country. Formerly, we used to propagate the greater number of our verbenas, petunias, senecios, calceolarias, &c., in August and September, and then kept them over the winter in store-pots—that is, large numbers of small plants together in one pot. But that plan is far more expensive, and not a whit more convenient than our present mode of propagating these things early in the spring; and we find that any of these dwarf plants, if rooted before the end of March, are as good—and in some instances better—for turning out next May, than the same kinds propagated in the autumn, if compelled to be half-starved through a long winter in crowded pots.

Of all plants, some of the *verbenas* are the most difficult to carry through the winter without losses and mishaps by mildew, damp, &c. Therefore, of them we keep no more over the winter than is sufficient to provide a few cuttings of each sort early in February.

All that can be done with *the mildew* on very tender little plants in winter, is merely to keep it under by dusting sulphur over the affected parts; it cannot be wholly eradicated. As soon, therefore, as a pot of cuttings is insured from such plants as are affected by mildew, or any other disease, the old affected plants are thrown away at once; and I would always advise this course to amateurs, who can command a common hot-bed, even as late as the middle or end of March, if they cannot get up one earlier; as, besides the trouble and unsightliness of diseased plants, many of these diseases—and particularly the mildew—are likely to take a firm footing in the place, and become troublesome in after years, if allowed to remain long in a pit or house.

In making *early spring cuttings* of verbenas, anagallises—or, indeed, of all the soft-wooded bedding plants, if the old plants have been previously forced a little to make a fresh growth from which the cuttings are made—it is not necessary to cut them below a joint, as we recommend for other plants. If the shoot is cut half-way between two joints, it will be right enough; and, by this mode of cutting, a very scarce sort may be multiplied much faster than by cutting under a joint, as by saving this bottom joint it will throw up two more cuttings in a few days, under a smart heat. If a hot-bed is in good working order for cuttings of this sort—or say, with a brisk bottom-heat of full 90°, and from 70° to 80° of top heat—from four to five days is the usual time in which the softer plants will strike roots; but we often see a small pot of very young tops of verbenas strike roots in fifty hours; but if we take a week as a general average for cuttings to root—from the middle of February to the end of April—we shall not be far from the mark. So that, if we have but very few cuttings of a particular sort to begin with, we may so manage as to have the required stock of it in six weeks.

One of the worst plants to keep over the winter for the flower garden, is the *Double French Marigold*; and there is no way of getting a bed of this in perfection, without saving the particular variety you want to bed-out for spring cuttings. Cuttings of the finest double yellow variety of this marigold I have made about the end of August, for many years; and before I hit on the right way of managing them, I have known the stock reduced, before the end of February, to three plants; and from these hardly half-a-dozen cuttings could be procured. Indeed, I recollect one spring, the propagator reporting that he could only get a single cutting to begin with; and that very season we had two good-sized beds marked for this plant, each of which required eighty plants to fill it well at once. But fortunately, this plant may be increased in the spring from cuttings much faster than a verbena; and cuttings of it struck as late as the 10th of May, will be ready to plant out of doors by the 1st of June. All this we had to prove that season; for from the one cutting 160 plants were made and planted at the proper time. Many people despise the name of a marigold bed, but I never heard any one say aught but praise of a bed of them made from cuttings. The plants are more dwarf and bushy from cuttings; and in the event of a clear yellow bed of this plant being required for a particular arrangement, there is no other way of supplying the desideratum but by cuttings; and when a striking variety of marigold is seen in a bed of seedlings, there is no way of perpetuating it except by cuttings. I have seen excellent beds of brown-coloured and striped flowers made from cuttings of these marigolds, but I only keep the clear double yellow this way.

I recollect an interesting experiment, which was suggested to me once by a gardener, who always kept his supply of double marigolds from cuttings; it was to ascertain if it were possible to stamp a permanency on a given variety, by a long course of keeping it by cuttings; but I believe it can hardly be done with this flower. Between us, we kept one variety without a break for eleven years, from cuttings taken in succession during that time, and then saving seeds from it; but the seeds did not produce more double flowering plants at the end of the eleventh year than they did when the parent stock was only three or four years of age.

FUCHSIAS.—When a supply of fuchsias is to be made in the spring, the cuttings should be put in among the very first that are made, in order to get good bushy plants of them before they begin to flower. Any one who is fond of a fuchsia bed, or hedge, in a flower garden, should use but one sort in a place. I have tried all the combinations that I could make out of a great many sorts—using, at different times, from two to twenty kinds in a bed—but I never got a bed of mixed fuchsias yet that pleased me, or that any lady, who understood the subject, admired. There are some who will admire anything gaudy in flower beds; but that taste is fast wearing out, and particularly in regard to fuchsia beds. Of all the old fuchsias, the one called *Gracilis* is the best for a large mass, or for a low hedge, and to be cut down to the ground every year; but for a permanent hedge, where they will stand the winter, *Ricartonii* is the best, because it is much stronger, and more hardy, than *Gracilis*. There are many instances of the *Fuchsia Ricartonii* growing into huge bushes, of from ten to fifteen feet high; and I heard lately of a hedge of it in the north of Ireland, eight or nine feet high, and as many feet through. But in my opinion, the one called *Carolina* is by far the best of all the fuchsias for a bed, or a hedge, or for single specimens, out of doors; and for this, among other reasons, that it is just a second edition of the original *Fuchsia coccinea*, with all the parts four times enlarged, and with the most powerful habit of that race of fuchsias, or those belonging to the *Coccinea* breed.

To make the best show in a bed, this *Carolina* ought to be propagated every year, in August, and from stout pieces of the young stems stuck in light soil, behind a wall or hedge. When it is more than two years old, it is too strong for ordinary beds; and nothing looks more out of character than a very tall crop in a small bed. Therefore a succession of young plants should thus be kept up. Hedges of fuchsias, when planted in suitable situations, are extremely beautiful—much more so when they are cut down to the ground every year, and thus made to flower on very vigorous young wood; and *Carolina* treated that way must be gorgeous indeed.

There is a climbing fuchsia (*Radicans*, a wild species), which would grow twenty or thirty feet long in a few seasons; but it is a shy one to flower. A first, or second, cross between it and *Carolina* ought to produce a giant fuchsia for standards. Such a cross has been obtained, but not skilfully, and it is of little use. The pollen of *Carolina* should only be used, and the cross repeated, until nothing but the constitution of *radicans*, or female parent, is left to the offspring.

DAHLIAS.—Any scarce variety of this flower should now be in heat, to produce a good stock from. People who have not seen this useful plant propagated on a large scale would hardly believe how many plants can be got from a strong root by beginning early with them. The great growers count them by the hundred from a single root. And the whole stock should now be carefully looked over, as they rot much faster now, after the fires are slackened, where they are kept under the stages of a greenhouse.

ANNUALS.—Hardy annuals—such as those recommended to be sown in the autumn—should now be sown again as early this month as the ground is tolerably dry. A piece of undug ground is best for them. The borders of a shrubbery, or where they could be a little shaded from the sun, would suit them very well. *Nemophylla insignis* sown any time this month would be in time to fill up open spaces between the geraniums planted out next May, and would keep the beds gay until the geraniums, or other plants, would fill up the ground. D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

FUCHSIAS.—This family of plants, named in honour of a celebrated German botanist, is so well known that any description would be superfluous. No one class of plants has been so successful in creating—among the middle and humbler classes of society—a love and a taste for the beautiful in flowers. Ever since the founder of the florist-house of *Lee* obtained the *F. coccinea* from the wife of a sailor—in whose window, in a narrow street by the banks of the Thames, it first attracted his attention—this family of flowers has been a universal favourite. To the present descendants of that father of London nurserymen is the public indebted for the introduction of *F. fulgens;* the hybrids obtained from which, and the older, smaller-flowered species, constitute the most beautiful gems we now possess. Most of them may be propagated with the greatest ease, either in-doors or out-of-doors.

Many a sweet look, many a happy countenance, have I witnessed, produced by the receiving "an Irishman's cutting"* of these lovely ladies' eardrops. Open-hearted, and open-handed gardeners, by the diffusion of these plants alone, have done something to refine, and soften, and purify the manners of the age. A rough, uncouth man—a prim, affected, haughty woman—could never be brought to admire and love such flowers without, at least, losing somewhat of that which is forbidding and repulsive. And, then, how sweet they look in the window of the labourer, with bright flowers and luxuriant foliage, basking in the rays of light transmitted through glass, undecked with cobwebs, unshaded by dusty deposits! Many, who know nothing of the cultivation of flowers, may yet be paragons of excellence in attending to many of the duties of life, and domestic ones amongst the number; but in combination with clean, well-grown plants in a cottage window, we hold the want of tidiness and thrift next to an impossiblity. For all those who would dive into the character of those in whom they feel interested, we here bring them within reach of an *oracle*, more to be depended upon for the truth of its responses than most of those that poets have tried to immortalise in song.

The popularity of the fuchsia is to be ascribed not only to its elegance, but also to the ease with which it may be cultivated, and the readiness with which it submits to various modes of growth—out-doors and in-doors— to meet the different circumstances of its many admirers. Presuming that those intended for blooming in the coming season, in pots, have been safely stowed away during the winter, in cold pits, cool greenhouses, or (what answers just as well under proper care) in sheds, dry cellars, back kitchens, and hay-lofts, and that whilst in these places, they have been secured from frost, and the roots kept in that medium state of moisture equally remote from dusty dryness on the one hand, and wetness on the other—a state, especially in the case of the uninitiated, more easily secured by covering, or plunging the roots, than by having recourse to the watering-pot—we shall shortly glance at some modes of culture, as suitable to the circumstances of several classes of cultivators.

First.—When there is the advantage of *a hothouse, as well as a greenhouse;* the hothouse being furnished with bottom-heat, either from fermenting material or otherwise. This is just the place for fuchsias, from the end of December to the end of March, if it is desirable to have fine, luxuriant, well bloomed specimens in May and June. The fuchsia, it is true, is a comparatively hardy plant; yet it luxuriates in what may be termed stove treatment, when growth, more than bloom, is the object aimed at. For this high temperature treatment, plants from one to two years old are the best. When it is desirable greatly to increase the variety, the pot, with the branches unshortened, may be set upon the bottom-heat, and then cut down within a few inches of the soil, when the sap is fairly in motion, and small shoots have been formed. Where all the cuttings required may be obtained from thinnings of the stool, the plants intended for this early work should be cut down shortly after the fall of the leaf, when vegetation is in a comparatively dormant state. These may be started by the pots being set on the hot-bed, during the latter end of December, or the whole of January and February; then watered, so as to moisten the whole of the soil, and no more to be given until the plant absolutely requires it. *Syringe* over the remaining part of the head frequently, to encourage the buds to break strongly; when that is done, and the shoots are one or two inches in length, shake away as much as possible of the old soil; prune away all dead and useless fibres, but leave the sound and main roots little mutilated. *Repot* again, into pots of a similar, or even of a smaller size, using rough lumpy soil, and not *jamming* but spreading out the roots in regular layers, taking care that the soil has been previously *prepared and heated*, so as to give no unnecessary check. Replunge the pots in the bed, if the temperature is not above 80°, top temperature 65°. If the bed is hotter, plunge only partially—or merely set the pots on the surface; water with warm water, and shade from the sun for a short time, until the reciprocal action between the roots and the young shoots is restored: giving no shade whatever, if in sunshine, a dusting from the syringe will prevent all flagging. Thin the shoots accordingly as you wish the plant to consist of one stem, or of one stem in the centre, with four or five round the circumference. In either case treat the stems alike, encouraging them to grow upright and unshortened, and yet keeping them so near the glass, as to encourage the abundant protrusion of side shoots, which, if not numerous enough, are to be stopped to make more. Shift into larger pots, when necessary; give plenty of the syringe, morning and evening, but especially during the latter. Give more air and room as the plants get larger; raise them by degrees from being plunged, so that they may stand on the surface of the bed; and thus inure them, gradually, for the closest and warmest end of a greenhouse, where they will soon present a mass of bloom.

Secondly.—When there is only *a greenhouse and a*

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* "An Irishman's cutting" is one with a nice root to it.

dung hotbed. Here a similar system may be adopted, only, as in such a bed, the plants could not long be kept, on account of their size and height, it would be time enough to start the plants in it by the middle or end of February; as then, they could be moved to the warmest end of the greenhouse in the end of March and beginning of April; and if encouraged, fine plants would be obtained in July.

Thirdly.—Where there is a hothouse, such as *a vinery* forced moderately early, but no bed with bottom-heat, *and a common greenhouse.* Where there is such a thing as a hotbed for cucumbers, in which the fuchsias could be started, and then transferred, first to the forcing house, and then to the greenhouse, splendid plants may easily be obtained. Where no dung-bed can thus be brought into requisition, the plants will flower late when thus cut down. In such circumstances, intead of cutting down the plant, it is advisable to cut in the last year's side shoots, within a joint or two of the main stem; by syringing frequently, and keeping a moist atmosphere, almost every bud will break just where you want it; and as you will possess in your plants the matured, elaborated sap, stored up in the stem last autumn, you will not have equal *luxuriance*, but you will have an abundant and a more early blooming, than you can ever obtain by cutting down the plant. By the time the vines, &c., shade the plants, they must be removed to the greenhouse. Such fuchsias should be started, and warm soil secured, before they are repotted into fresh compost.

Fourthly.—Where there is *only a greenhouse*, a similar system—not of cutting down, but of shortening in the side-shoots—should be resorted to; and, for this purpose, the plants raised from cuttings of the previous spring, and which had been grown during the previous summer, are the best, as the plants seldom break regularly, in such circumstances, after being old. The warmest position may be given them, and the plants may stand quite thick together, until the shoots are nearly an inch in length.

Fifthly.—Where—as in the case of many of our readers—all their plant repositories are found inside and outside of their *windows*. Here it is advisable to retain the plants in their winter quarters, until the buds have fairly broken out, and appear as incipient shoots; the fresh soil that is wanted should then be given. Pruning should merely be given in such quantity, and no more, as will encourage the symmetry of the plant. An early and a continuous blooming is here the principal thing; and the more of these little shoots you can encourage, the more abundant will be your bloom, though the individual flowers will not be so large, nor yet the foliage so luxuriant, as when pruning and cutting down had been more liberally indulged in. Though you must not keep your soil dry, beware of making the earth *sodden*, before it is occupied by roots: when the pot is full of roots, there will be little danger of over-watering. Thoughout the greatest part of the summer, the plants will thrive best outside the window.

A few more things may just be noticed.

Soil.—Equal parts of peat and loam, or turfy loam, with a little leaf-mould and charcoal, answer admirably.

Manure.—A little dried cow-dung may be blended with the soil, or put on as surface-dressings. Fuchsias dearly like a dusting, over the surface of the soil, with superphosphate of lime.

Water—moderately, until the pots are filled with roots—then they suck like topers; and, if not surface-manured, a liquid well-coloured with guano, or sheep-dung, will please them amazingly.

Propagation.—Very small shoots, taken off in spring, and placed in heat, make nice little plants for autumn blowing. All will strike freely, during summer, under a hand-light, or even in a shady border, without protection.

Seeds, sown in spring, will sometimes give small flowering plants in the autumn, but are chiefly used for obtaining hybrids. The seed-berry of many would make no mean addition to the dessert.

Shoots—where grown to any extent, and especially out-of-doors—are very useful as small flower-stakes for calceolarias, geraniums, &c. R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

Plants Requiring Peculiar Treatment: *Anæctochilus setaceus.*—In the description of this plant, the week before last, it was mentioned that the flowers were not showy, but curious. The sepals (outer petals) are greenish, tinged with red; the petals (inner) and labellum (lip) are whitish; the latter being fringed. The stem, bearing several flowers, rises about five inches above the foliage. Each flower is not more than three-quarters of an inch long, by a quarter of an inch broad. The stem and leaves belonging to it die off after flowering; fresh shoots springing up from below. Now, as the leaves are the great beauty of these plants, it is not adviseable to allow them to produce any flowers. As soon as the flower-stem appears above the foliage, we advise it to be nipt off with the finger and thumb; and then to squeeze the top of the stem that is left, to dry up the sap, which would flow, and cause the stem to rot downward, and eventually destroy the plant.

As these plants are rather difficult to cultivate, we shall endeavour to describe what we consider the best method to cause them to grow well. As they are terrestrial plants, growing in thickets and under hedges, amidst decaying leaves, the soil proper for them is a compost of sandy-peat and vegetable mould (leaves rotted down to earth). Pot them in this compost in small pots, according to the size of the plants. Let the pots be well drained with broken potsherds; put a little moss upon the drainage, to keep the earth from choking it up; then fill the pot nearly full with the compost, and place the plant in the pot—filling up round it, till it stands a little elevated above the rim of the pot, and pressing the earth moderately firm to each plant. Next, take a pot three or four sizes larger than the one the plant is in; fill it so full of moss as to allow the pot with the plant in it to be plunged amongst the moss; the moss and plant to be a little elevated—forming a small hillock in the centre of the pot. A thin layer of the moss should be laid, also, over the soil in which the plant is potted. After all this is done, put over each plant a clear bell-glass, a little less than the pot containing the moss, and place them on a platform—not far from the lower part of the glass-roof of the house. As these plants grow in shady places, it will be necessary to keep them constantly shaded from the sun, excepting during the short days of winter, when they may be allowed to enjoy his beams.

Water.—Considering again the native situation of the Anæctochilus, it will guide us in the application of moisture. They require watering in small quantities at a time—but often, so as to keep the soil moist, but not wet or muddy. As the bell-glass must be kept constantly over them, that alone, by preventing evaporation, will keep the soil much longer in a moist state than it would be if the glasses were taken off occasionally. Frequently, it will be sufficient to water the outside of the glasses only, the water will percolate through and wet the moss, and that will keep the soil in which the plant grows in a state moist enough for a considerable time.

Propagation.—The only way these plants can be propagated, is by taking off a young sucker with a root attached, and managing it exactly as the older plants, in respect to soil and situation. The only difference will be in placing it in a smaller pot, and with a smaller bell-glass over it. If an old plant happens to have several shoots belonging to it, it may be split up into as many plants as there may be shoots; each division will soon make a good plant.

Physurus Argentea, and P. Argentea Pictus, are two plants of similar habit to the foregoing, but with leaves of a lighter green, and silver-coloured markings, instead of the golden ones of Anæctochilus. They are extremely beautiful, though by no means equal to the last; but are more hardy, and, consequently, easier to manage.

Culture.—Potting, placing under a bell-glass, watering, and propagation, are in all points similar.

We have seen these plants, all of them grown in a middling way, without the bell glasses, but we do not consider it safe to follow that practice. We have tried it repeatedly, and found it deficient. For a time, in the warm days of summer, the plants will grow, if in a favourable situation, pretty well, but in dark and dull winter they will languish and grow weaker. The bell-glass system is the safest and best, in our opinion, and will answer well in almost every situation; only, these orchids must be grown in the moist Indian house.

Resting.—To know when the bulbs are in a proper state to go to rest, may be, to our readers, of some consequence. They ought to be strong, and, if expected to flower, at least three feet high, stout and firm, quite to the apex. All the leaves ought to turn yellow, and drop off in the same manner as any other annually leaf-shedding plant; and all this ought to take place early in autumn. As soon as it does so, remove the plant, or plants, into a *drier* and *cooler* house, and keep them there until the buds at the bottom of each pseudo-bulb begin to appear. The season for potting Cyrtopodiums has arrived; and this is one reason why we have just now written the above account of the peculiar treatment they require. We always try so to time our instructions as to suit the season, immediately when such operations are required. "There is a time to plant" (or pot, we may say), is the remark of the wise man; and as there is nothing that marks the zealous, successful planter more than taking time by the forelock, so we say to the grower of these, and of any other plants, let not a day pass when the right time comes, to pot your tender and cared-for plants, as near the very day proper to do such work as possible.

FLORISTS' FLOWERS.

As we may reasonably expect very soon to have finer weather, clearer skies, and a warmer atmosphere, we must begin to look about us sharply, that nothing is wanting, on our part, to do all we can to forward the necessary operations amongst our pets, that may be needful to be done. We have lately had a peep or two of sunshine, which has been a commodity considerably at a premium through January. The plants in frames and pits have been kept close covered, by good florists, for a longer period than usual; but there have been a few days when they might be uncovered, and light, air, and in some instances, a small quantity of water given to them. And right welcome these indications of more genial weather will have been, both to the florist and his plants. We have only a brief space left to notice what we consider necessary to be done in this department.

Pinks.—These plants will require attention as soon as the frost disappears. They were planted out in their blooming-beds in the autumn, and the frost will have had the effect to loosen them in that situation. Choose a dry day, and press the earth with the hand closely again to each plant. If necessary, add a little dry, light, rich earth, to the surface: it will refresh them much.

Carnations and Picotees.—Look out for that plague, the spot on the leaves. If you observe any leaves so infested, cut them off at once, or it will spread unmercifully, and may destroy the whole plant, and, what is worse, infect the whole flock. To such plants as are healthy, you may now give a little water, in moderate quantity.—T. Appleby.

THE KITCHEN-GARDEN.

The season of general business for cropping the kitchen-garden is now fast approaching, and advantage must therefore be taken, on all favourable opportunities, to carry on all the requisite operations, with judgment and economy. Neatness and order should at all times prevail, and everything should be done in a regular and systematic manner. Trenching, ridging, forking, and scarifying the earth's surface, for obtaining a healthy, pulverized soil, must be well attended to—this being the main-spring of good culture; not only preventing the brooding and ravages of vermin, but also the trouble of seeking for them when the growing season arrives: it also establishes and maintains a regularity and evenness amongst all crops.

Cauliflowers should be turned out of pots, under hand-glasses, and be planted on warm sloping banks.

Cabbage Plants.—If any blanks occur, they should be filled up, and another crop planted.

Peas.—Some of the best kinds of second early and late kinds may now be planted in full crop—such as the *Charlton*, one of the very best kinds for a small garden; very productive of good-length pods, and a lasting bearer; growing from five to six feet high. The *Scimetar Blue*, which is a well known prolific pea, of good quality, and well worthy of culture in any garden, follows close in succession to the *Charlton*, growing four or five feet high. *Knight's Green Marrow* and the *Woodford Marrow* are both good late peas, of fine quality, and lasting bearers, which come in July and August, and grow from five to seven feet high, on good ground. The *Thurston Reliance Pea* is the best modern pea I have seen; with us, in Devonshire, it grows about eight feet high, is very prolific, with large pods, well filled with a large, handsome-shaped, and fine-flavoured pea; it lasts well in bearing, and comes in July and August. *Knight's Tall Marrow* is too well known to require any comment: it is, certainly, not adapted for very small gardens, unless the proprietor wishes to grow one kind only, and has the patience to wait for a good-tasting, late pea, the superior qualities of which are not exceeded by any other variety. One half-pint, with us, we find sufficient to plant 100 feet in length. They require to be planted thinly, as, by timely stopping, they will branch from every joint; and on well-trenched and richly-manured soil, they grow, with us, from 12 to 16 feet high. In the hot, dry season we mulch them, and supply them with abundance of water and liquid-manure; the production we thus obtain, of the finest quality, is most astonishing, and continues for many weeks.[*]

RADISHES, of all kinds, should now be sown on open borders, in full crop. A slight covering of mulch, fern, evergreen boughs, or any easily-procurable sheltering material, should be used to protect the crops from frost, driving rains, birds, &c.

CABBAGE, CAULIFLOWER, and LETTUCE, should be sown on warm borders, with the same rules of protection as given for radishes; small plants reared in heat, or in pans, &c., should be early pricked out and protected.

CUCUMBERS AND MELONS.—Those already ridged out should come in for a good share of attention, if a healthy luxuriance is to be kept up, and an abundance of handsome fruit is expected; as the days lengthen, and the light increases, so should the application of heat increase; if applied by fermented materials, it should be well wrought and sweetened, that is to say, it should be turned over and over several times, and not be allowed to remain above five or six days without turning, which will sweeten it, and keep it from caking together, and burning white and husky. The linings to the beds should be of pretty good substance at this season, as much as 18 or 20 inches wide, and topped up with mulch, hay, or some other sweet, dry material; and the outsides should be protected with thatched hurdles, furze-faggots, or protectors made from refuse prunings, evergreen boughs, &c., &c. The linings should, of course, be kept well, and regularly topped up, in order to maintain one uniform heat; say, for this month, for young plants, and those just turned out, from 68° to 70°; and for those now shewing fruit, and those now producing fruit, from 72° to 75°; keeping the inside of the pits or frames, near the outer edges of the interior, at all times well moistened, at shutting-up time, with tepid water; and, occasionally, an application of liquid manure, to charge the atmosphere with ammonia—a very essential matter, to keep the plants in health and luxuriance. Air freely, daily; shut up *early*, and cover snugly, but lightly; sow in succession; prick the young plants early, and place them at all times close to the glass.

Place *mint*, *turrragon*, and *rhubarb*, into heat; and sow *Kidney beans*, and cover up *sea-kale* in succession. JAMES BARNES.

MISCELLANEOUS INFORMATION.

OUR VILLAGE WALKS.

No. 18.

DURING the intensity of the present weather, and the piercing severity of an east wind that blows with peculiar rigour, I am glad to shelter myself among the trees and woods, where I find some quiet spots, some richly-green, summer-like branches, and here and there a pale straggling blossom on the winter furze. Not a living creature is seen or heard in the snowy fields; the sounds of husbandry—those interesting, English sounds are hushed; the huntsman's horn—that death-note to the poor panting Fox—has not been heard for weeks; and scarcely one solitary gun has broken the silence that seems to pervade the land. This is a sudden and wondrous change in so short a time! Just before Christmas, all was green and comparatively mild, and now we are plunged into a season that has not had a parallel for years. "Is there not a cause?" Shall we not soon adore the Hand that has withdrawn from us the cheering sun, and locked up the earth as if within frozen doors? Beneath the dry sterile surface wonderful things are taking place: the band of God is moulding a thousand beauties, that shall, in a few short weeks, "replenish the earth," and deck it again with summer gladness." May we not confidently hope that this unusual winter will give rest and strength to all vegetation, restore the healthiness of plants and roots that have suffered from disease, and increase the blessings showered upon the heads of men? Let us receive a word of instruction during this sunless, inclement season; it has a voice, and a loud one, for the children of men. Do we not sometimes, in the providence of God, pass into dark and dreary days when blessings are withheld, or snatched from us, that made our paths to be both pleasantness and peace? Do we not sometimes look round upon the world, as if it were a howling wilderness, and feel that the piercing gusts of sorrow, and the rugged path we have before us, are more than we can bear? Let us trust in Him who leads us by the right hand, who sits by us as a refiner, who tempers the fire to the clay. Let us believe that our hearts need the stern pressure of adversity: that it is good for us to feel the rod, that we may, in a brighter and happier day, "give glory to God in the highest." Before these pages appear in print, the depth of this winter may have passed away, and spring may be bursting forth; as soon may our trials be lightened, and our hearts once more rejoice in the sure mercies of God.

In a larch plantation, through which I sometimes pass, it is very interesting to observe the busy labours of some poor men, who are permitted, during the time when work is not to be obtained, to grub up the roots of the trees that have been cut down. The comfort and blessing this permission has been to them is very great; and I sincerely wish all gentlemen who possess plantations would adopt the plan during this period of the year. It is quite essential that men of steady character should be preferred, because mischief often arises when lawless characters are permitted to enter the woods. Game is disturbed, poaching is brought on, hedges broken down, and injury done to the roots of the standing trees, which, of course, is less likely to occur when men who can best be depended upon are allowed to work. It is, also, very proper to encourage the respectable, in preference to others, for the sake of example; although they often are as much, and even more, in distress than their steady neighbours. The roots of larch, and other firs, burn very tolerably as soon as they are taken up. The poor men pack the best wood in cords for sale, and the smaller pieces enable them to keep up a little fire at this inclement season, when wages are so difficult to obtain, and nature needs additional warmth. The removal of roots in a plantation does no harm, in fact it rather benefits; for when the holes are properly filled in—which must always be insisted upon—the ground which the stump occupied is gained, and the herbage will soon spring up for the sheep or cattle that graze among the trees. It is delightful to see the poor men labouring away with their pickaxes, wedges, and levers; forcing up the roots, and rejoicing over every piece they break away. Those who can thus benefit the poor, should not hesitate to do it; for it is giving them work as well as money, and neither loss nor expense attends the boon. Roots of trees frequently remain for years in the ground—in fields, and hedge-rows—unthought of, and of no account. If these were carefully removed in the same manner, and at the same comfortless season, how many hearts would sing, how many cold hands would glow, both in the hours of labour, and when the cottage hearth sent up its cheerful blaze. In pleasure grounds too, even in gardens, men who can be *fully* trusted might dig up stumps with great advantage to the ground. In our own case, this is admirably done by one of the best, most thankful-hearted creatures in the parish. His work is so neatly finished off, that you can scarcely notice the spot from which the stump is taken; and the soft soil is well adapted for planting, in due season, a shrub or tree.

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[*] I beg to name another variety of pea, which I consider one of the very best of early peas, namely, *Clarke's Ringwood Marrow*. It grows from four to five high in good ground, and is a first-rate bearer; the pods are large, and the peas too. No other early pea has any chance with it in the competition room. W.

Having seen, with *my own eyes*, the good effected among the poor in this way, by those who have little else to give, I strongly urge upon my readers—those who may possibly have it in their power—to adopt this plan; even if but one poor man in a parish can be helped by it, to do so without demur. Who can feel comfort in their own bright fire, if they know that one as bright lies hidden and useless in their field, and if they know that one poor shivering family *might* gather round a hearth? It is of no use to content ourselves with *saying*, "Be ye warmed and filled," if we neglect to do what may be done, by taking a little thought. I believe much is left undone simply from want of thought; but if we studied more than we do the wants of those around us, we should find many little ways of doing them good, that seem trifling to those who have plenty of this world's goods, but are of deep importance to those who possess nothing. When we see a labourer wending his way homewards over the frost-bound earth, with his wheel-barrow of roots for the evening fire, is it not cheering to the heart? But for that long-forgotten root, that has lain uselessly in the earth for so many winters, that poor man's home would to-night be cold and dark.

Even the little birds are fed by these means. The ground is so hard that their tender beaks cannot penetrate it in search of worms; they frequent the windows and doorways where crumbs are thrown out, and follow the labourer closely in the very scanty work he can now perform. And great must be their sufferings, no doubt; yet even they are had in remembrance by Him who formed them: "not one of them is forgotten before God."

I was standing yesterday, watching the men as they grubbed and broke up the frozen earth, while the east wind blew through the bare trees with sharp asperity; numbers of little robins hovered round, and watched, with keen bright eyes, every stroke that fell. They darted to the very feet of the workmen, braved the noisy blow of the pickaxe, and hopped boldly among the fresh soil, as it was thrown about. The men entered with kindly feelings into their little anxieties, and threw every worm they could find towards them. They told us that the *dish-washer* (the provincial name for the Wagtail) came in search of worms—a most unusual food for them; and that the robins "pitched into them" with fury, when they thus ventured to intrude upon their rights.

Let us—as we scatter crumbs from the window, or watch the little birds thus profiting by the labours of men—remember that we "are of more value" in the sight of God "than many sparrows;" and if He so tenderly takes thought for them, shall He not much more take thought for *us*—the souls for whom Christ died?

Let us rest, in simple faith, on His eternal word: "Fear not!"

TO CORRESPONDENTS.

***** We request that no one will write to the departmental writers of The Cottage Gardener. It gives them unjustifiable trouble and expense; and we also request our coadjutors *under no circumstances* to reply to such private communications.**

Walnut-tree Planting (*H. L. B.*).—No particular directions differing from those lately given for planting "on stations," generally, are required. Follow out these directions strictly, and take special care to stake the trees very firmly with three stakes to each. If you neglect this, your trees, being ten feet high, will wind-wave, so as to disturb and prevent their re-rooting. The same observations apply to your *apple* and *pear-trees*. All of them ought to have been in their places two months ago. The *burnt wood* from a fire in your neighbourhood will be excellent for mixing with the soil about the roots of your trees, and for any of your kitchen-garden crops.

Measuring Distances (*A Subscriber*).—Can any correspondent inform this inquirer "of an instrument for measuring distances, instead of having recourse to the old-fashioned and tedious process of the tape?" He is told the pedometer is not to be depended on.

Mushroom Beds (*C. J.*).—These will succeed in a cellar. You will find full directions for making them at page 189 of the present volume. This volume began with No. 53, and there are 26 numbers in each of the preceding two volumes.

Ducks (*A Subscriber*).—Your ducklings having swollen crops, drooping wings, and then dying, arises probably from want of water, and unwholesome food; but how could any one tell without more information, unless he were a wizard.

Ivy on Timber (*A. Thurtell*).—If you mean on dead timber, ivy will preserve it instead of injuring it; but if you mean live timber trees, ivy injures them by stopping up the pores in their bark, and shading them from the healthful influence of light and air. You will have seen the information you require about the *mistletoe*.

Striking Cuttings (*L. C.*).—You will do this in phials of water better in the spring. Sow *verbena* and *chrysanthemum* seed in a gentle hot-bed in March. You may raise the *Egg-plant* (Solanum melongena) in a hot-bed, and plant it out in a warm border at the end of May. The *Tree mignonette* is only the common variety trained in a peculiar manner, as is fully detailed by Mr. Beaton at page 87 of our last volume. If you render the staple of your soil more friable, by mixing with it abundance of coal-ashes and lime rubbish, you will be able to grow on it mignonette.

Winter-pruning Roses (*W. F.*).—Mr. Beaton has entered so fully and so correctly into this subject, that nothing remains at present to be said. You, of course, can follow either his advice, or that of your friends. You certainly have nothing to fear from frost penetrating the wounds, if you attend to what Mr. Beaton said.

Early Peas (*S. W. Wade*).—The *Prince Albert*, or May, is rather under three feet in height. It is that which we grow for our first crop. It comes in before the Early Frame, if sown at the same time; and is in every way its superior. The *Hang-down Long-pod Bean* may now be sown. Three inches is quite deep enough to sow it, even on your light soil. The Windsor bean does not succeed well for early sowing. Beans sown now if the month proves mild, will be a fortnight earlier for gathering than the same variety sown in March.

Heating Hothouse Boilers (*S. N. V.*).—Your papers shall appear. Have you any objection to give us your direction?

Guano (*J. R. Price*).—Two ounces per square yard sprinkled over the surface, whilst *onions* are growing, will improve them; but do not give it to *potatoes*. Guano is far preferable to lime as an application to poor, cold land for *turnips*. But we should put lime for potatoes. Of course the crop will be small, but, probably, it will be healthy if autumn-planted.

Oxalises (*A Young Beginner*).—You planted these last November in old turf soil. All would grow better in pots with three-parts peat, and the other part like your present "turf soil," with about one-sixth sand. Or they would do in sandy peat altogether, and the same with your *Hypoxis stellata*, which is a very pretty flower on a very dwarf plant. *Oxalis thirta* and *O. tubiflora* are hardly worth growing; they are shy flowers. *O. spectabile*, if true, is very fine, and we believe hardy. We have grown it for years in a light rich border. It flowers for a month or six weeks, from the end of May. *O. Gilord* is not a true name, and we cannot make out what it is. *O. Bowiei* is a beautiful oxalis, and you are fortunate in having it now "coming up." Turn it out into a border, when the frosts are over, next May, and it will blossom all the summer. Keep all of them free from frost, and no more; and let us hear your other questions soon.

Hyacinth Offsets (*C. W. L.*)—Do not remove these from those in pots: you might do more harm than good by displacing them; and they cannot affect the present flowering of the parent bulbs.

Cytisus (*Ibid*).—Yours is the small-leaved variety of *Cytisus racemosus*, alias *rhodaphne*. It is a fine showy, hardy, greenhouse shrub; requiring good loam—or loam and a little peat—to grow it in, and must be kept watered all the winter. Your plant is evidently too dry; let the pot stand in a saucer of water for a day or two, or till you perceive the surface turning moist; then let the plant drain for the next few days; and, when the soil is between "wet and dry," shift the plant into another pot; and by the middle of May, it will probably require another shift, if the pot is full of roots.

Pansies (*Ibid*).—These *may* be planted under standard roses, with advantage to the former; but it is not high gardening to plant anything over the roots of roses. Pansies will not answer under fuchsias, unless the fuchsias were trimmed as standards; for the side or bottom branches would kill the pansies.

Passion Flower (*Ibid*).—There are two or three seedling varieties in the nurseries which would grow against the south wall, on which the Maurandya Barclayana flourishes; and they are as hardy—or very nearly so—as the old one. Of these, one called *Passiflora Herbertii* is the best.

Rose-buds Grub-eaten (*Faversham*).—Every spring, the buds of your roses are eaten by a caterpillar (see note, vol. ii. p 86). Wash the rows with a mixture of fresh lime and soot, made into thick paint; and look out for the grubs, or rather caterpillars, early in May, which, after all, is the best cure.

Pillar Roses (*T. S.*).—*Sempervirens odorata*, about which you ask, is a fine, strong, light coloured climbing rose, which will grow ten feet, or more, against a pillar, and much more against a wall; but it does not require a wall. Your *Triomphe de Bolwylla* is an old rose, and will do for a pillar; but will not grow so strong as the *odorata*.

Mummy Wheat (*Lady G. F.*).—We are extremely obliged by the offer, and useful information, contained in your note, from which we venture to make this extract: "Lady G. F. writes to tell the Editor that she has some mummy wheat, which she can give to any one who likes to try it. She had it, four years ago, from Mitchell, at Brighton, to whom Lord Bristol had given one ear, grown from the seed found in the hand of a mummy. The farmer, who grew some acres last year, pronounces that it deteriorates, and he does not mean to grow any more; but the failure this year may be accidental, as it had not deteriorated till then."

Wall-netting (*Rev. T. H. M.*).—You ask us, "What is the best material for wall-netting, and what sized mesh?" We think woollen, and half-inch mesh; but this is not the most economical. Canvas, as recommended by Mr. Errington, is the best covering, all things considered.

Pear-tree Shoots (*W. H. G.*)—You say, "At page 30, vol. 2, you gave me some directions respecting some young pear-trees, which were followed. The only new shoots made, were from the points of the previous year's growth. Will it not be well, in February, to shorten the shoots, (without reference to the new or old parts), according to the principles laid down in The Cottage Gardener, with regard to maiden trees?—see pages 164, and 209, vol. 1." In reply—if you want to produce more shoots, in order to fill up the body of the tree at its commencement, you must shorten, as you propose; without such an object, you must be ruled by the character of the young wood alluded to; if ripe-looking, reserve them, if immature, it may be well to prune back to ripe-looking portions.

Locust-tree (*A Lover of Gardening*).—This is the *Ceratonia siliqua*; and its seed, we think, may be had from some of the London large seed-shops; but they are not in much request.

Date Stones (*Ibid*).—We have known date seeds from dates sold by grocers grow; and we think such would carry to Australia, and grow there; but if not, you could procure them at Sidney.

Rhubarb Roots (*Ibid*).—Roots of all our rhubarbs would carry to Australia, if well pecked; and should be sent off in October or November. Take seeds of them also.

Bulbs for Australia (*Ibid*).—These ought to be sent out just at their natural period of going to rest; say ixias and hyacinths, at the end of May; and those dormant in winter, in October and November.

The Cottage Gardener (*Ibid*).—The stamped edition can go free to Australia, on payment of one penny.

Flowers in Vinery (*E. H. T.*).—Our correspondent writes to us as follows:—"I wish to know how to make a vinery most available for flowers. My vinery has a large walled space in the middle, where pines were formerly grown. The vines are started in January. I have a greenhouse, which I keep cool, and which contains all the geraniums, fuchsias, cinerarias, &c., and also the cuttings of verbenas, &c., for bedding out; but I want to make more use of the vinery, which is of a higher temperature than the greenhouse at this time of the year. I have a second vinery for late grapes; and I think, by good management, I might have a better succession of flowers. The second vinery has figs in the middle space. Are there not some plants which might be moved from the cool greenhouse to the vinery, in January or February, with advantage? The walled space, where pines once grew, seems to offer advantages, if I knew how to use it." In reply, we may observe, that in a vinery hardly so well arranged as yours, we keep from 10 to 15.000 flower-garden plants over the winter, without any pots—merely planting them very close, after they are cut down in the autumn, at the end of January. The scarlet geraniums, and other hardier plants, are removed into cold pits, and the tender things are removed into a late vinery—just like yours; and the first vinery is then forced through the spring, and all that time is kept constantly full of plants for flowering early, or for forcing into early growth. A bare list of such plants as may thus be advantageously forced or assisted, would fill a number of The Cottage Gardener. The middle space in your vinery, formerly used for pines, ought to be made into a hot-bed—say with well-prepared dung, leaves, or tan, and a covering of tan to keep down the steam of the dung, and to plunge pots in. Here *roses* in pots would be forced, including a few *sweet-brier plants*, *bulbs* of various kinds, and a first portion of all the *achimenes* first started. *Scarlet geraniums*, prepared last summer, should be introduced in February, for flowering in May. *Cinerarias*, *China primrose*, and, in short, every plant named for forcing in our pages, may be introduced in succession; and, when they are on the point of flowering, may be removed into the late vinery for a week, and then into the greenhouse, or your rooms.

Liquid Manure to Potted Plants (*A Lover of Flowers*).—It will be found beneficial in using liquid stimulants for pot culture, to have recourse to a change as often as convenient. Thus, house sewage one week, soap suds the next, soot-water to follow, and so forth. It is also beneficial to mix such articles together, and use the compound. *The grand secret* is to apply such mixtures or simples *regularly*, and in very small or weak doses *all through the growing season*; but the prevailing practice is but too often the reverse: strong doses, fit to kill half the pot plants in the country, are given one week or day, and then only common water for another stated period; but we have all along recommended every other, or alternate, watering to be with some weak stimulant, when plants are in active growth, but only plain rain-water when they are not growing.

Animal Charcoal (*Ibid*).—This, after being used by the sugar refiner, is quite as useful as a manure as if it had not been so used; but it requires to be mixed with light soil, and to be frequently turned, and thoroughly incorporated with it for some weeks before using. We have no experience of its employment in potting, but we have known where it has been used very beneficially to kitchen-garden crops. So used, it is nearly, if not quite, as beneficial as vegetable charcoal; containing, like this, much carbon, but a still greater amount of phosphate of lime. Your question about *Rose potting* is answered at page 288.

Goat Keeping (*Rev. R. P. T.*).—Can any of our readers give genuine information as to the best kind of milch goat, and as to the best mode of keeping it? Such information will be useful to many.

Allotment Gardening (*V. G. H.*).—This, together with poultry, cow, and pig keeping, are treated of in our double number, at the end of every month.

Number of Cabbages per Acre (*Dr. Lang*).—It is in p. 22, of the Farmers' Almanac, by Cuthbert W. Johnson, and not in the Gardeners' Almanac, by George W Johnson, that it is stated that 7490 cabbage plants are required for an acre, if planted at three feet apart. You say that "each plant will occupy a square of nine feet, and that there are only 4840 such squares in an acre."

Annuals for Small Town Gardens (*Tom Tough*).—There is no really good *new* annual, or biennial, that would suit your situation. You must put up with the old sorts, and we shall soon name such as will answer best for confined situations, like yours.

Tying Plants to Supporters (*T. W.*).—We will consider this subject, but we fear that the art of training plants to sticks can no more be taught by books, than the art of making boots and shoes; indeed, not so easily, and many plants are much disfigured by the best trainers.

Pine-apples (*Ibid*).—Your pines, shewing roots two inches above the soil, in the axils of the leaves, have been kept too comfortably since last September, otherwise they would not root from the axils of the leaves at this season. If the bottom leaves are good, that is, strong, with a healthy green hue, do not strip them off for the sake of these roots. As soon as they throw up for fruit, it would be a good plan to earth them up with small lumps of turfy soil, if provision is made for watering. Young plants might be potted deeper at the usual time, otherwise we would not disturb established plants for the sake of such roots.

Begnonia Venusta (*Ibid*).—This is one of the most splendid stove climbers we have; but at first, say, for the first three or four years, it requires a great deal of room. After that, it flowers, and may be kept in less compass. If it is cut in much, for want of room, while it is young, it will not flower for many years.

Hyacinths (*Vale*).—It is difficult to say what is the cause of your hyacinths, in glasses, withering away and rotting; most probably the foliage was too much excited before sufficient roots were formed to supply the bulbs.

Tropœolum Lobbianum (*Ibid*).—This, or, indeed, all the summer tropœolums, would grow with you, backed, as your garden is, by the Malvern Hills. The finest *Eccremocarpus* we ever saw, was growing over an out-house, just beyond the "Herefordshire Beacon," not far from your locality, and is a good climber to stand a burning sun; and so is the *Lophospermum*, but it would not live over the winter. The *Solanum jasminoides* would flower against a house anywhere about Malvern, and live out the winter with little or no protection.

British Queen Strawberries Unfruitful (*G. Jones*).—Having so constantly failed in getting fruit, we recommend, root out all your British Queen strawberries—it is evident your soil does not suit that variety. We, too, are in the same predicament; half an acre of our ground would not furnish three dishes of the British Queen strawberries in the whole season. It is one of the best, nevertheless, where it succeeds. Keep one row and experiment on it. Strawberry plants to fruit, or rather force, next winter and spring, are prepared from the early runners of this next summer, as stated at page ——. Nothing will improve your clayey soil so much as draining, and then burning the first six or nine inches. The white appearance on the plants in your frame, is the worst symptom of the damp fungus, and all the parts covered with it you will find quite dead. Your frame has been kept far too damp.

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WEEKLY CALENDAR.

M D	W D	FEBRUARY 14—20, 1850.	Weather near London in 1849.			Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
14	TH	Valentine. Elder leaves open.	T. 51°—41°.	S.W.	Fine.	19 a. 7	10 a. 5	7 40	2	14 29	45
15	F	Red Dead Nettle flowers.	T. 57°—32°.	W.	Fine.	17	12	8 49	3	14 26	46
16	S	Laughing Goose goes.	T. 45°—23°.	W.	Fine.	15	14	9 59	4	14 23	47
17	SUN	1 SUNDAY IN LENT. Waxen Chatterer goes.	T. 52°—28°.	S.W.	Fine.	13	16	11 10	5	14 18	48
18	M	Common Honeysuckle leaves open.	T. 52°—35°.	S.W.	Fine.	11	18	morn	6	14 14	49
19	T	Stock Dove goes.	T. 50°—38°.	S.W.	Fine.	9	20	0 22	☽	14 8	50
20	W	EMBER WEEK. Dartford Warbler goes.	T. 52°—33°.	S.W.	Rain.	7	22	1 35	8	14 2	51

VALENTINE.—Last year we gave the biography of the ecclesiastic commemorated on this day, and endeavoured to explain the origin of choosing valentines. This amatory selection was a costly fashion in the time of Charles II., for every gentleman had to make his chosen fair one a present of value; and those who wished for advancement at court took care to bestow their offerings upon the favourite and most influential lady of "the merry monarch." Thus, when Mrs. Stuart was in the ascendant with that king, the Duke of York and Lord Mandeville each chose her for his valentine; the latter giving her jewels valued at £300, and those presented by the Duke being worth £800. The offering brought by Montgomery was far more classical; for he combined, for the adornment of his chosen one, all the early flowers of the season.

For thy locks of raven hue,
Flowers of hoar-frost pearly;
Crocus-cups of gold and blue,
Snowdrops drooping early,
With mezereon sprigs combine,—
Rise, my love, my Valentine!

O'er the margin of the flood,
Pluck the daisy peeping;
Through the covert of the wood,
Hunt the sorrel creeping;
With the little celandine
Crown my love, my Valentine!

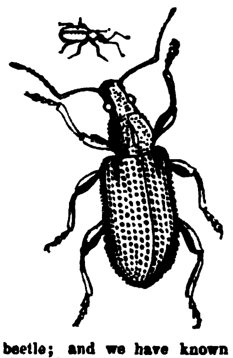
Pansies, on their lowly stems,
Scatter'd o'er the fallows;
Hazel-buds with crimson gems,
Green and glossy sallows;
Tufted moss and ivy-twine,
Deck my love, my Valentine!

Few and simple flowrets these;
Yet to me less glorious
Garden-beds and orchard trees,
Since this wreath victorious
Binds you now for ever mine,—
O! my love, my Valentine!

QUADRAGESIMA, OR FIRST SUNDAY IN LENT.—*Lentz*, the old Saxon name for Spring, in allusion to the lengthening days, is now adopted for the fast which occurs at the commencement of this season. Quadragesima, or fortieth, is said to have received its name because it is about the fortieth day before Easter; but also to be commemorative of the forty hours during which our Saviour was under the power of death; and of the forty days Roman Catholics are expected to abstain from flesh meat.

METEOROLOGY OF THE WEEK.—During the last twenty-three years, the average highest and lowest temperatures of these seven days has been respectively 45.5° and 32.0°; and, during the same period, there were 66 days on which rain fell, and 95 days were fine. The highest point reached by the thermometer was 57°, on the 17th in 1847; and the lowest 16°, on the 19th in 1845.

NATURAL PHENOMENA INDICATIVE OF WEATHER.—When the *jonquils* bloom early in March, they are said to announce that the following season will be very fine. *Paper kites*—says Dr. Forster—may be converted into useful prognostics of the wind. When several of them are let up together—the higher ones being successively tied to the back-sticks of those below them—they will ascend to a height of more than 1000 feet. When the upper kite moves in a direction different from the lower, the wind usually changes to that from which the upper kite indicates that it is blowing. When—adds Dr. Forster—by the motion of kites we perceive that the wind vibrates, or shifts its direction, we may be sure the weather will be squally. There is, also, a kind of bobbing motion sometimes imparted to kites by the wind, in variable weather. The kite seems to nod backwards and forwards—jerking the arm of the person holding the string.



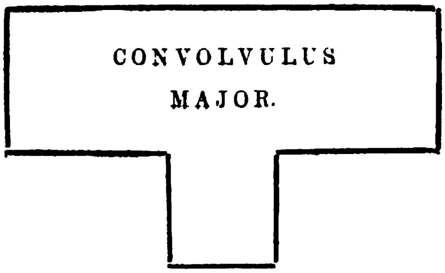
INSECTS.—Mr. Knight observed, that the blossoms of pear-trees are often rendered abortive by a small brown beetle; and we have known those of the Chaumontelle, and of some of the more tender French pears, especially subject to this beetle's attack. In May, the blossoms do not open, or open abortively; and, if examined, they will be found to be pierced, and otherwise grub-eaten. The grub doing this mischief is the larva of the *Polydrusus oblongus*, called by some entomologists *Curculio oblongus*. It is a small weevil, or beetle, as represented in our drawing, magnified, and of its natural size. Its body is black, but the wing-cases covering it are purplish-brown; the antennæ and legs brownish-red. It may be found upon the bark of pear-trees at the end of May, and during June.

RANGE OF BAROMETER—RAIN IN INCHES.

FEB		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
14	B.	29.288 29.157	30.452 30.390	29.721 29.613	30.066 29.995	29.696 29.796	30.185 30.118	29.660 29.604	29.863 29.658	30.671 30.528
	R.	—	—	—	—	—	—	0.12	0.04	—
15	B.	29.263 29.071	30.446 30.424	29.470 29.294	29 947 29.919	29.966 29.876	30.260 30.196	29.540 29.358	29.554 29.174	30.519 30.491
	R.	0.15	—	—	0.02	0.01	—	0.25	0.03	—
16	B.	29.141 29.086	30.488 30.416	29.234 29.193	30.171 30.146	29.904 29.851	30.196 30.182	29.798 29.636	29.956 29.713	30.521 30.464
	R.	0.11	—	—	—	—	—	0.23	—	—
17	B.	29.584 29.584	30.372 30.252	29.502 29.420	30.108 29.983	29.959 29.944	30.177 30.010	29.904 29.879	30.436 30.214	30.552 30.487
	R.	0.01	—	0.16	—	—	—	—	—	—
18	B.	29.614 29.490	30.367 30.316	29.425 29.400	29.824 29.558	30.021 30.007	30.005 29.978	29.908 29.772	30.420 30.182	30.159 30.396
	R.	0.04	—	0.04	0.05	—	—	0.01	0.16	—
19	B.	29.744 29.601	30.377 30.194	29.417 29.311	29.498 29.292	30.139 30.063	30.061 29.993	30.197 29.769	29.778 29.553	30.182 30.007
	R.	0.02	0.02	0.28	0.02	—	—	—	0.02	—
20	B.	29.977 29.808	30.030 29.881	29.324 29.261	29.792 29.765	30.164 30.029	30.076 30.061	30.235 30.213	29.744 29.364	29.957 29.689
	R.	0.11	—	0.16	—	—	—	0.01	0.02	0.28

MANY things are upon our table deserving notice; but we have only a brief space to devote to their consideration. First, because most meritorious, we will ask for attention to the monthly part of *The Gardeners' Magazine of Botany*. It is, decidedly, the best of all the highly-illustrated magazines devoted to gardening that has ever been published in this country. We have no room for descanting upon the merits of the practical and scientific essays which fill its fifty-six pages; and will, therefore, confine ourselves to an enumeration of its embellishments. There are most superiorly coloured plates of *Passiflora Belottii* (Belott's passion-flower), with petals alternately white and pink; of a rose-coloured variety of *Maurandya Barclayana* (Barclay's Maurandya); of a hybrid *Anemone japonica*, of which the parents are the common Japanese anemone, and the Vine-leaved Indian anemone; of a new pelargonium, called *Flower of the Day*, which certainly will be a fine bedding-out plant, if its trusses of scarlet flowers are large and globular, and not too much above its white-bordered leaves; of *Calceolaria flexuosa*, (Twisted calceolaria), a species more curious than handsome; and of *Philodendron Simsii* (Sims' philodendron)—a striking stove perennial, reminding us of the plants commonly known as arums. Besides these five coloured plates, there are eleven woodcut portraits of other flowers, executed in the highest style of the art; besides some six or eight other woodcuts of various subjects interesting to gardeners. As a whole, we see, in this monthly part, no reason to modify the high opinion we expressed of the first weekly number.

Next we have to notice some *metallized gutta percha flower labels*, of this size and form. The tongue, or projection below, fits into a zinc stem, made of various lengths, and sharpened so as easily to be thrust into the soil. They are made of a brown and of a black colour (the first we like best); but in both, the letters are very boldly raised, and coloured so as to be very legible. A third sort is crescent-formed, with a hole through each corner of the crescent to admit thin wire, or string, for suspending them to shrubs and trees. They are of an imperishable nature; and if they can be sold at a moderate price, will meet with a ready sale.



Lastly, let us mention *Mr. Denyer's Catalogue of Flower Seeds*, which is well classed, and gives much useful information; but why not give the *English* names, and thus increase the interest amongst the most numerous class of purchasers? We have supplied (between brackets) this deficiency, in the following list, given by Mr. Denyer, of his annual "Evening Primroses:"

GODETIA OR ŒNOTHERA		Height. ft.	in.	Months in bloom.
	bifrons (Two-faced) pink and red	1	0	7 9
,,	densiflora (Thickly-flowered) purple....	0	6	..
,,	lepida (Pretty) lilac	1	0	7 8
,,	Lindleyana (Dr. Lindley's) white & red	1	6	..
,,	purpurea (Purple-flowered) purple	1	0	..
,,	Romanzovii (Romanzoff's) purple......	1	6	..
,,	rosea alba (Rosy-white) rose & white ..	1	6	..
,,	rubicunda (Ruddy) red and white	2	0	6 9
,,	tenuifolia (Slender-leaved) blue........	1	0	7 8
,,	Wildenowii (Wildenow's) violet........	1	0	7 8

In conclusion, we cannot agree with those who are condemning seedsmen for inserting the names of so many varieties in their catalogues. Provided that none but good varieties are inserted in them, with full particulars of their height, and individual merits, then there can be no objection to a long list. It is very easy for any critic to say, "We will select six varieties, than which no one need require more;" but he knows little of human nature, or of gardener nature, who is not aware, that every knight of the spade has his own pet selection; and woe be to the seedsman who could not supply the chosen ones. Nor is this a mere matter of whim. Different varieties are often most excellent in different soils.

THE FRUIT-GARDEN.

KIDNEY-BEANS.—We must beg, whilst the season is young, to remark on this useful esculent, which, although not strictly within the precincts of fruit-forcing, very frequently occupies shelves in the vinery or pinery. We will merely detail our practice, which is thoroughly successful. We plant, at first, in five-inch pots, putting five sound and picked beans in a pot. These are placed on any warm shelf or kerb-stone, where constant fires are used; and sometimes even beneath the piping, or in any dark out-the-way place, until the seeds are up—light not being necessary during this stage. It is of the greatest importance that the soil in which they are planted be thoroughly and equally moist; for what is termed mellow soil is too dry, and may cause them to require water before they come up—a process to be avoided, and which generally proves fatal to a portion of the crop. As soon as up, they are, of course, removed to a very light situation, and receive water—rather sparingly at first, but increased as the cotyledons and true leaves expand. We now suffer them to remain until the pots are *thoroughly* filled with roots; and, in the course of this period, we sometimes suffer them to receive a trifling check, through an hour or two's drought; only, not suffering them to flag. This is done in order to stiffen the plant; for, in the comparative absence of light which occurs at an early period, the plants are very apt to "draw," or grow weak; and this shows, indeed, how necessary it is to choose a light situation for them, and, if possible, near the glass. Just before we re-pot them, a central shoot becomes developed above the first pair of *true* leaves; this we pinch off, for it often becomes rambling and unmanageable: the consequence then is, that every plant pushes forth two in its stead. The plants are now shifted into their fruiting-pots, and, at an early season, we use seven-inch pots; but later, and when they have to endure a somewhat dry situation, a small size larger. Nothing, henceforth, is necessary, but to keep them in a light situation, to water them regularly—not suffering them at any time to be *quite dry*—and to gather the pods as soon as fit for use; for it is surprising how much a few overgrown pods exhaust the plants.

Compost for the Beans.—Mr. Paxton, in his calendars, some years since, recommended the use of the material from exhausted mushroom-beds. We have tried this material, and find it very excellent—as, indeed, might be expected—being, in general, good turfy loam and manure. As, however, the quantity of dung is, in general, disproportionate, we may advise equal parts of fibrous and slightly adhesive loam, leaf-mould, and rotten manure from old hot-beds—the whole in a mellow state, and well blended; if some charcoal dust can be added, so much the better. The pots must be well drained. We put a couple of inches of a mixture of course lumpy manure, rubbly charcoal, and old tan, with the dirt clean riddled out.

Liquid Manure.—This is of immense advantage to the kidney-bean, but must not be used until the plants commence blossoming, or it will cause them to grow too rambling. One ounce of Peruvian guano, and two good handsful of soot, will make a gallon sufficiently strong for anything. This must be applied in a clarified state, taking care to give enough to moisten the soil completely.

Temperature.—Kidney-beans enjoy a vast amount of heat, provided a due amount of atmospheric moisture is kept up; without which, indeed, they will soon become a nursery for the red spider. They will not thrive in less than 60°, but should, if possible, be guaranteed 70° in the day time; if 80° by sun heat, so much the better. We advise the use of sulphur on the flues, or piping, according to advice we have formerly given. We practice this sulphur painting three times a-year, and we scarcely ever find a red spider in our houses.

Atmospheric Moisture.—The kidney-bean delights in a moist, as well as a warm atmosphere; in these respects, it may be classed with the pine, the cucumber, and the melon; it may, therefore, combine with these at an early season, or even with flower-forcing. At a later period, kidney-beans may be grown in ordinary frames or pits, without bottom heat, or other wise with a very small amount. For this purpose, they should be sown in boxes or pits, in the middle of February, and transplanted. The pit, or frame, for their reception, must be made up about the first week in March, and the plants kept as near to the glass as possible—the lights being clean washed. After planting, they must be carefully matted up every night.

Pines.—Little can be done amongst pines at present; little handling can take place with these. Towards the end of the month, however, or the beginning of March, most gardeners rearrange their stock in general: for where the old pot system is pursued, such a course becomes indispensable. Bottom-heats require some renewal, and early fruiters want a warmer situation, and are separated from the general stock, if possible, for the sake of system; added to which, many gaps will exist in the fruiting pit, through the removal of ripe fruit. All these arrangements require forethought; and it becomes the pine grower, at this perid, to make up his mind as to how many he will keep through the ensuing year; and consequently, what structures will be requisite. It not unfrequently happens, that a greater stock of young plants is in hand than is necessary for the system pursued; and when such is the case, the best way is to weed them out, and dispose of them in the end of February. This surplus of young stock is sometimes a serious evil—inducing the cultivator to cram his necessary stock too closely together, or to widen his system, at the expense of some other useful thing, which also require glass. Those on the Hamiltonian plan will now be much refreshed by having some clean new tan, in a dry state, thrust amongst their stems. Before this is done, however, it will be well to examine the stools, all over the pit, and see how the suckers are placed. We think it not well to encourage more than two healthy suckers at once, on a given plant. Still we would not tie the cultivator's hands in this respect; sometimes a third will also appear, so promising, that with those who study convenience (and not the mere *eclàt* of winning a prize at some Exhibition), even a third may be left, if well placed. It is well to have those suckers somewhat in succession; not all of the same age—thus, whilst one will be ripening, a second will be swelling off, and a third not yet shewing fruit. Where a selection offers itself, those should in general be chosen which come through the soil, or tan; and which Mr. Hamilton terms "ground suckers." By those means, the Hamiltonian system may be carried on for any length of time, provided the preparation beneath is of an enduring character. By resorting to a ground sucker, after working the old stem for three or four years, the system is brought back to its original starting point, as far as the plant in question is concerned; which is now as young as ever, and starting for a new race, and a new progeny. Those who adopt the Hamiltonian system, should be very cautious in their watering; so little is required. We have a pit of black Jamaicas on this system (with some trifling modifications), which has not received a drop of water by by hand, since last September, when they were soused all over with warm water from the pot's mouth: some scores of gallons being tossed all over them. Since then, they have received plenty of atmospheric moisture, and a free circulation of air; and our heating apparatus being quite inadequate to proper pine growing, we have not been able to sustain a temperature above 50° average, throughout the winter; the bottom-heat having descended gradually from 80° in September, to about 60° at the present period. Now, this is not choice, as may be readily guessed; yet we have cut, at least, three a week since the beginning of December, and richer flavoured pines were never eaten. Several of the stools have had two perfectly ripe (and exactly equal in size, height, and general character,) at the same time. We shall have much more to say about pines shortly.

Figs.—The fig-houses require putting in order, in a similar manner to the peach-house; and the commencement of forcing must be somewhat gradual. If dry at the root, which is almost sure to be the case, they must have a good soaking of weak warm liquid manure, as recommended for the peach. After this has settled for a week or so, we would advise a good coat of mulch to be applied, if not too rotten in character; this will exercise a controlling power on the moisture in the soil; for the fig is very impatient of sudden drought, and neither can it, on the other hand, succeed in stagnant soil. As for pruning, little is needed; some shoots will get too long for their situation; they must be removed. Some shoots may have been laid in too close, in the summer; these must be thinned away, removing all the longest jointed, or naked portions, and reserving plenty of compact, short-jointed, and hard-looking wood, of the last year's growth. The wood should receive a dressing, as antagonistic to the visits of the red spider and the scale. Three ounces of soft soap, three handsful of sulphur, and some clay to thicken the whole, added to a gallon of water, will, when beat up, make an excellent paint, which may be applied all over the wood, rubbing it into every crevice.

Figs in Pots.—These we must treat of as not belonging to the fig-house, for they are generally forced in some of the houses, or pits, containing vines, pines, &c.; or, they may be in a pit by themselves. The most successful we have ever known were in large pots or tubs, plunged in a small bottom-heat of leaves, and the roots allowed to penetrate through the bottoms of the pots, &c. Indeed, we should say, that a bottom-heat of 70° to 75° ought to be provided for them. The main business is to have strong, well-grown plants of some age. The limits of our present paper will not permit us to go into the subject of preparatory culture. The wood of these should be dressed with the mixture recommended for the fig-house; and if any are very much pot-bound, they must be shifted, taking care to drain them thoroughly. If no bottom-heat is provided, they may stand on the kerb-stones of houses at work; or on a back shelf; and their forcing may proceed at first with a temperature of 60°, advancing gradually to 70°, by the time that the leaves are fully developed. The young shoots require stopping when about five or six leaves are developed; this will cause them to form fruit at almost every eye. As before observed, drought is fatal to them; they, therefore, require regular watering, using occasionally weak liquid manure, especially when swelling their fruit.

R. ERRINGTON.

THE FLOWER-GARDEN.

PROPAGATION.—Of all things connected with gardening propagation on a large scale, whether by seeds or by cuttings, to furnish the annual supply of flower-garden plants, is the most enticing. To convey to the comparatively uninformed on such subjects, a clear idea of the processes connected with busy propagation, even for one week, is altogether impossible for the pen of the most ready writer. The machinery must be seen in active operation to be rightly understood or appreciated. I have seen ladies of the highest rank willingly undergo the fatigue of standing by the hour, in a cool potting shed, to witness the stirring scene; and I can testify from a long experience, and the oldest and best practical gardeners in the country look forward to the time of spring propagation with renewed interest, year after year; even the dullest boy on a large establishment, who one would hardly trust to draw a handful of radishes last June, is now sure to be smitten with the fever of propagation, and must try his luck on cast away pieces of plants from under the potting bench, as soon as the coast is clear for his private experiments, or when the men retire for their meals; and he will have his pot full of cuttings, in some out-of-your-way corner, at all hazards. Amateurs, too, in their own way, are just as much excited in this way, as any of us; but, unfortunately, their hobby but too often takes an uneconomical turn, and, instead of pushing on a really useful process, to multiply a host of good common plants, they must expend their energies in endeavouring to rear seedlings of such things as are perfectly useless. Coffee-trees, tamarinds, dates, sugar-canes, ginger, cotton plants, and a thousand others of no better stamp, are the only things which are worth spending time and money on, according to the creed of seedmongers; and, after failing annually, for the last twenty years, to rear one single useful plant from a thousand packages of foreign seeds, they will renew their wonted attempts this very spring, with all the ardour of new beginners. And as all that can be said, by the rest of the gardening world, against such folly can have no effect on this passion for new seedlings, let us drop the theme, and rather endeavour to direct part of this enthusiasm towards such plants as we know to be more suitable for the sober flower-gardener, and address a new class of aspirants; as, no doubt, there are many of our readers who may reasonably be so termed. Perhaps, a general sketch from actual practice, on a large scale, as carried on in the gardens here at Shrubland Park, this present season, will be as instructive as any other we could mention by way of introduction. More so, at any rate, than to trace out one from the imagination, including in it all the best points of practice which prevail in the present day; because in no plan, however extensive, can a gardener embrace all the best practice of the day in any one season; and nothing is so well conducted in one place, but it may be improved on—more or less—in another.

I mentioned last week, that we have given up here our former practice of propagating a large stock of *soft wooded plants* in the autumn, and now we only keep a sufficient stock over the winter, to supply the first batch or two of spring cuttings; and it follows then, that, with our extensive grounds, we are obliged to make a strong effort early in the spring, to get up many thousand plants in a short time. Some years since, we erected a long range of tank pits, by which we can command a steady bottom-heat, day and night, for a whole season; and one division of this range we call the "propagating-house," and it is as convenient as any propagator could wish for: there is a potting bench at one end of the passage, with conveniences for pots, crocks, and soil, so that, as soon as a cutting pot is ready for the cuttings to be potted off, the whole process of dividing the cuttings into sizes, potting them in nursing pots, wattering them, and arranging them on shelves or in bottom-heat, is done without moving from the same apartment. And this is the way our propagation was performed, when the greater part was increased in the autumn. But my propagator now calls this the "old way," and yet he has adopted a much older plan, indeed, the oldest on record, and a great deal less inconvenient for himself. But, so it is, and all our propagation is now carried on nearly on the old hot-bed system, but without linings: the beds are made of one-third stable dung and two-thirds leaves, prepared just as Mr. Errington mentioned the other day; and by the middle of January, the beds were made in deep brick pits, about seven feet wide, having two-inch hot-water pipes running close under the front glass, supplied from a pan-boiler, such as is used in "back kitchens;" it contains twelve gallons of water, and costs something like ten pence the gallon, and is very efficient. On the top of the dung we place a thickness of three inches of pure white sand, such as is sold at five shillings a bushel in some parts of the country; but we have a pit of it not a hundred yards from the garden. There is no kind of covering for a dung hot-bed for cuttings so good as this sand; no steam or bad smell can rise through it, and the hot vapour from the dung keeps it partially moist for a very long time, so as to be an excellent conductor of heat. One division of the range, that next the boiler, is appropriated to cutting pots, and the next division for forcing plants, in order to produce young tops for cuttings, and for nursing the young stock, as soon as the plants are in a condition to be removed from the cutting-bed. The light next to the boiler, or end light, has almost always a bottom-heat from 90° to 100°, owing to the flue passing across the pit at that end to a chimney in the back corner of the pit. The top-heat of this division, which, by the way, has pipes all the way round it, is not allowed to fall below 75°, day and night, as no resting time is allowed to the inmates; and sometimes, on a sunny day, the heat is above 100°. It will thus be seen, that the growth for cuttings, the striking of them, and the next stage of nursing, are all effected by a damp close *dung-heat* principally; and if I had not witnessed the effects, I confess I could hardly believe that the difference between this mode and the new way, by close tanks, could be so great. You may vapour-bath a tank-house three times a day, and use ammonia water for that purpose, only be careful not to use it strong, and yet you cannot obtain anything like the growth that is obtained by this dung heat; and not only that, but the young shoots formed in a close hot-bed will strike nearly in half the time required by others grown in a stove or vinery. I have repeatedly seen a pot of verbena cuttings put in the last thing on Saturday evening, and they were ready to pot off on the Tuesday following; but the bottom heat was above 90° all the time.

The *compost* we use for striking soft wooded things, as verbenas, calceolarias, anagallis, and the like, is one-half peat and one-half leaf-mould; and to a heap of this compost an equal quantity of sand is added; and this is exactly the compost we use for every thing in cutting pots, and in the nursing pots, except the small lobellias, and for them one-half sand and one-half peat is given; over this compost a slight covering of sand is placed, to insert the cuttings in, but these things will strike very well without a covering of sand, where it is difficult to be had; but as we have it here in abundance, we use it in all cutting pots. When sand is not used for cutting pots, our other compost would hardly answer; the peat should be discarded, and sandy loam used in its place, as, if the pots should get dry, the sandy peat is very difficult to water through and through, as the pots are almost quite full, as these kinds of cutting pots, ought always to be; although I dare say many of the cottage gardeners never thought on that essential point in propagation. Whenever I had been permitted to see their domestic way of growing cuttings, I never failed to be surprised how they could get one-half of them to do at all; invariably, in my experience, their cuttings were put into pots three times too large, and generally an inch space or more was left unfilled at the top, so that a careless or inexperienced waterer might give the pot such a dose at once as would kill one-half of such cuttings as we make; but the worst part is yet to be told. I never yet saw a regular compost for cuttings in the hands of such gardeners—nothing better than the common mould, in which the plants would succeed when they were old; but after all they manage to root many things.

Now let me say how we gardeners do our *cutting pots*, that is, for common flower-garden plants. We never use one larger than a five-inch pot, or what used to be called 48's, and for every five-inch pot we fill with these cuttings, I think I am near the mark if I say, that we use 100 three-inch pots; so that suppose I had 150 cuttings of one sort ready, and that a three-inch pot could only hold 50 of them, I would prefer putting them in three of these small pots, instead of planting them all in one pot that was large enough to hold them; well, then, three-inch pots are partially drained, one crock is quite enough for a cutting pot of this size—indeed, I have seen hundreds of them used without any crocks at all, nothing but the above compost; but let us say one small crock, to keep up the old rule—then the pot is filled brim full with the compost, without the least pressing; then hit the bottom against the potting-bench, this will settle down the compost, and if there is more than a quarter-of-an-inch of the pot not filled, add as much us will bring the soil to that point, and see that it is in that state we call "not wet nor dry;" then lay as much *damp* sand as will quite fill the pot, and with a round stick, or one with a straight edge, make a "strike measure" off, by passing the stick over the mouth of the pot; and when you thus fill as many pots as you think you can fill in one day, set them all down on a level place, and give them a gentle watering, with a very fine rose pot; this watering will settle the sand a trifle, so that the pots are not quite full this time; now this should be the first job in the morning, so that the pots have time to drain, and get a little dried-up, while you are looking for and making your cuttings.

Now, let us suppose that you bought in six new verbenas lately, that you cut out the mere points of all the shoots they had, and that they have since made a double shoot from each of the points, so stopped in a close hot-bed, or some very warm moist place; when the new growth has made two clear joints, and is just on the point of developing the third joint, in the proper time to cut them off for propagation. Nurserymen, and very skilful florists, who pay very dear for new verbenas, would not wait so long for the first *cuttings*, nor would they stop the shoots as I have said, but it is of no use for ordinary people to try to compete with such knowing customers, many of whom can make two plants out of every joint any verbena would make, through all the spring months. The way they manage so cleverly, is thus—a verbena, as every body knows, puts out its leaves in pairs, one on each side of the stem at every joint; and, like all other common leaves, each of them has a bud or eye close to the bottom of the petiole or footstalk; and by cutting the shoot a little above and below a joint, and by splitting this joint down through the middle, then by inserting each portion, and fixing it so that the bud is just within the sand, they get a new plant from every leaf and bud; of course all this requires the most particular attention, else the least neglect or mishap would be sure to end in the loss of the whole. However, if one was sure of a good stock of cuttings, without going to this nicety, this experiment might be tried, for we never know what we really can effect without we have recourse to various experiments—many plants will even grow in the spring for mere leaves, without a bud at all. In taking cuttings of verbenas with two joints, we need not cut under a joint, as is really done with such cuttings as take some weeks to root; we may rather cut just above a joint, and if we insert the internode, or that bare portion of a shoot between two joints, so as to bring the bottom of the two leaves just within the sand, it will be sufficient; the internode will keep a firm hold of the sand, and the roots will issue from the bottom of the leaves in less time than if the cut was made close to the joint, and the joint itself placed deeper in the sand.

D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

Greenhouse Management.—Although numerous answers have been given to the varied and multiplied number of questions, as to constructing, heating, and general management of greenhouses, whether it was desirable to make them subservient to the culture of greenhouse plants alone, or to serve the purpose of an *omnium gatherum*—embracing within their little dimensions something of almost everything, not only in the way of flowers, but even of fruit; still the inquiries that are made respecting these matters—such, for instance, as the mode to be adopted in a small greenhouse, heated by a flue, and which is now merely used for the excluding of frost; for having forced geraniums, cinerarias, fuchsias, tulips, hyacinths, narcissus, verbenas petunias, strawberries, &c.; the amount of temperature requisite for starting and blooming; the degree, and the frequency of steaming the house, by throwing water upon the hot flue; *when*, *how often*, and *how*, the syringe is to be used for the different plants? &c., &c. Such continued inquiries we look upon as proofs, either that previous statements have not been sufficiently attended to, or that these statements have not been sufficiently explicit; and, judging that a little blame may rest both with readers and writers, we shall glance at the subject thus brought before us, and give it a greater degree of prominence than it could have received in the correspondents' column. First, then, we premise, that to make the most of such a single house, for such a variety of purposes, it is necessary to have at least *one cold pit*, built of brick, turf, or wood, for the purpose of retaining those plants designed for succession, and also for the purpose of hardening-off those which are removed from the house, either when it is intended to place them out of doors, or take them to a cool sitting room; though, in general, for the latter purpose an intermediate position will seldom be necessary. Where such a desirable convenience does not exist, and nothing can be done except within the walls of the house, then anything like *forcing at an early period*, and yet keeping in the same place a quantity of plants, as successions for blooming and fruiting, must at once be relinquished. All that can be done in such circumstances is, to obtain flowering plants of the kinds indicated moderately early in spring; strawberries, three weeks or a month earlier than from the open ground; and grapes, if the house is furnished with vines in the beginning of September, or the end of August; the effects obtained being more the result of fostering *protection* than of absolute *forcing*. If, however, instead of having a succession of fuchsias, verbenas, &c., the object be to have these things *early*, and then the house to be decorated during the summer months with tender annuals, achimenes, &c., then the case is altered; and unless, during a few dull months of the year, you may give your house the temperature midway between a greenhouse and stove, and thus you will not only obtain a greater variety of flowers, but, by commencing after the turn of the day, be enabled to have several successions of strawberries and earlier grapes, either from vines on the rafters, or vines in pots. We would again advert to the importance in such circumstances—the having a single house—of the dividing it into two compartments by a glass or glazed calico partition, as described at page 337 of our last volume. Upon a smaller scale, much might be done (as stated in answer to correspondents, 2 col., p. 204 of the present vol.,) by enclosing a part of the flue at the hottest end, as a sort of hot-bed or pit. If the flue runs round the front of the house—which is a general thing—the enclosing of the space above it, and between it, and the front wall, would give you all the advantages of a small separate house, by having a glass partition from the flue to the roof, made to slide at pleasure. The side of the flue next the middle of the house might thus be left exposed; and, if properly constructed, would emit from thence a sufficiency of heat for greenhouse plants in bloom, or when slowly growing. The whole of the flue by the front of the house might thus be enclosed, and if covered first with brick, then rubble, and then sand, and the place then separated from the rest of the house by a calico or glass partition; the part so enclosed might again be divided, so as to afford different temperatures—beginning, of course, at the warmest end. A flue for such a purpose is just inferior to a tank or a hot water pipe, because it will want *cleaning*, and be apt at times to get out of order, and the more likely if, however well constructed, *water* is thrown upon it when hot; but with the covering we have indicated, plenty of steam and moisture may be obtained with comparatively little injury.

Now, as to *cinerarias*, and *fuchsias*, and *calceolarias*, &c., we do not think we could, at present, add to the definite directions given lately, by which a person will be enabled, at once, to act according to the circumstances of his position. *Geraniums*, though they will bear as high a temperature as we lately said the fuchsia would do, can only do so in bright weather, and with a fair portion of air. A temperature higher than 50°, in dull weather, will make the shoots spindly, and the flower-buds small. As the days lengthen, and the sun gains power, the temperature in the middle of the day may be gradually increased, when bloom is wanted very early; keeping the plants, however, near the glass, and giving them fresh air. As to *syringing*, no plants like a slight dusting, morning and evening, better; but heavy syringing should seldom be given; and, in all cases, the water should be clear, as, otherwise, a sediment will soon be formed on the leaves. Where this pure water cannot be obtained, syringing the stage, and watering the paths, so as to keep up a moist atmosphere, should be substituted in the room of wetting the plants overhead. Many young hands make sad havoc by a rather free use of the syringe: the surface of the soil in the pot is frequently thus kept wet, and the plant becomes sickly, diseased, and insect-attacked, not only because the surface-soil is soured and potched, but because the lower portion is as dry as if baked in an oven.

Steaming.—The advantage of effecting this, by scattering water over a hot flue, or pipe, is, that every part of a plant is enveloped in a moist, misty vapour; and thus parts of the bark, &c., are softened, which the syringe might not reach. It is of most service in an evening, after a sunny day; and in a morning, before a day that is expected to be bright. Its advantages, however, we consider over-estimated in general circumstances. Resorting to it in dull weather is absolutely injurious; the foliage, by means of the heat applied, when anything like forcing is attempted, is, in such circumstances, thin, and the shoots inclined to be spindly; because, during the absence of the sunbeam, there has been little assimilation of fresh matter to their substance, and giving plants a vapour-bath in such circumstances only aggravates the evil; and no wonder, though there be hurrying and scurrying to shade from the brunt of the sunbeam, after the poor plants have been petted and coddled like sickly invalids. With few exceptions, instead of steaming flues, we consider the furnishing flues and pipes with vessels for holding water, fitted closely to each, respectively, without any intervening body of air, as being the safest and the most natural course to adopt; as then you may always be certain that the moisture in the atmosphere of your house will be in proportion to its temperature. Do not be satisfied, however, with merely placing the evaporating pans on the flue and pipe; see that they are so placed that no air is enclosed between them. A clever scientific mechanic fixed some zinc pans on iron pipes for me, by merely putting red lead at their sides and ends; and would not be convinced of his error until he saw that others on the same pipe, with a coating of red lead all over their bottom, and squeezed firmly on to the pipe, evaporated themselves dry in less than half the time. In steaming use the syringe instead of the water-pot, and refrain from touching the warmest end of the flue, especially in cold weather, when the fires are strong.

Bulbs we cannot now enter upon; look over back numbers. See that they are well filled with roots before you introduce them into the house, and then give them the warmest place until they show bloom.

Petunias and *verbenas*, whilst in the house, should not have above 55° from fire heat; both make splendid pot specimens, when well managed.

Strawberries.—Those plunged in the ground in 32-pots, protect alike from wet and frost. These precautions, along with having the buds well matured in the autumn, are the secrets of success. For early work—such as producing in the end of February and the beginning of March—we prefer 48-pots, such as our correspondent used last year, chiefly because in them growth is sooner perfected in the autumn; 32's will answer admirably now; begin with a temperature of 45°, raising it to 60° when in bloom, and 5° more when swelling their fruit. Air give freely; pots keep near the glass; water, whether from pot, syringe, or steam, give sparingly, until the flower trusses appear; but keep them rather damp than dry afterwards, until the fruit begins to change, when the water must be withheld, so that the leaves do not droop, nor the fruit shrivel. We would have entered more into detail, but our space is more than filled. R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

PLANTS REQUIRING PECULIAR TREATMENT.

Cyrtopodiums.—These are noble and splendid orchids, when grown well, especially *C. punctatum*. They belong to the division we have described as "terrestrial"—growing on the ground. They are natives of various parts of the South American continent. We have had plants of this genus sent from Guatemala, Brazil, Demerara, and Venezeuala. *C. Andersonii* has been found in the island of St. Vincent. These *habitats* (native places) show that these plants do not require the heat of the Indian house: the Mexican one will grow them better. Even in a common stove they will grow satisfactorily, provided they are kept quite dry when at rest. We published, several years ago, in the *Botanical Register*, an account of a successful mode of cultivating them. As that work may not be in the hands of all our readers, we quote it here for their benefit, premising, that we have seen no reason to suppose that any better method can be followed. It is as follows:—

> "As soon as I perceive the buds springing at the bottom of the pseudo-bulbs, I take the plants, and carefully shake off all the old soil, and cut off all the decayed roots. I then put them in large pots, well drained, in a compost of rough turfy loam, chopped into pieces about the size of a pigeon's egg, peaty turf broken in the same manner, and leaf mould about half rotten, all in equal parts; to which I add about one-eighth of bones, broken into small pieces. I mix all these well together, and place the plants on a level with the rims of the pots, and finish, by giving a good watering to settle the compost. The plants are put in the warmest part of the house, and watered very moderately at first, increasing the quantity as the plants increase in growth, until the leaves are fully developed. I then give them manure-water once a week, to encourage the production of strong pseudo-bulbs, without which it is in vain to look for flowers. In this I succeeded to my entire satisfaction, and last year had the pleasure of perceiving the flower-stems appearing at the same time as the bulb-shoots. I had, eventually, flower-stems five feet high, with numerous side branches, making a bundle of flowery-stems in one shoot of more than eighteen inches in diameter. As soon as the present stems (that is, the stems of that year) were perfect, I gradually reduced the water; and when they are at rest, I give no more. To induce a more perfect quiescence, I have them removed into a cool, dry, house; average temperature, 55°. The essentials of this method are, to use a rich, but open compost, to give plenty of water during growth, and a season of complete rest. Those who attend to all these points need not fear flowering orchids."

In addition to the above, we have only to remark, that the season of rest must be attained, at least, by the end of September. Every pseudo-bulb must then be completely formed, and the growth finished, so as to be sound and perfect. If in a crude state, it is more than probable that the tops of the pseudo-bulbs will, during the winter, begin to rot. To arrest this decay, we have found the application of a coating of powdered chalk very effectual. Cut away the decayed, or rotten part, down to the sound, living, healthy part; and then place upon it a covering of the chalk, pressing it with the finger into the pores of the pseudo-bulb. By this application we have often preserved the greater part of the bulb through the winter; and the spring following, after potting, had as good—or nearly so—shoots as those that had been perfectly ripened. Still, we advise, by all means strive to have the bulbs perfectly ripened, and then there is no necessity to use such remedies.

Barkeria Lindleyana, B. melanocaulon. B. Skinneri, B. spectabilis.—There is no genus of orchids more deserving of culture than *Barkeria*, and no collection, however small, but ought to include, at least, the two latter species, though they are all beautiful, elegant plants when in flower, and last a considerable length of time in bloom. We have already (at page 155 of the present vol.) alluded to the *B. Skinneri* exhibited by Mr. Plant, gardener to H. Schroder, Esq., at the Horticultural Society's meeting on December 4th of last year.

Barkeria—so named after the late William Barker, Esq., of Birmingham—Lindleyana (Lindley's Barkeria) a native of Casta Rico, is a truly elegant species, but very scarce and dear. The flowers are larger than those of *B. Skinneri*, the sepals and petals of a deep rosy purple, the lip is of the same colour, but darker, except in the centre, which is of a beautiful blush.

B. melanocaulon (Dark stemmed B.).—We have not seen the flowers of this species, but they are described as being very beautiful, with rich, dark-coloured stems, as the name implies.

B. Skinneri. G. (Mr. Skinner's B.) is from Guatemala. Sepals and petals of a most lovely rosy-pink colour, produced thickly on a stem sometimes two feet high, nine inches of which stems are densely covered with its lovely blossoms. We have had the same spike in flower for two months and upwards at a time. There is a variety named *major* with large, deeper-coloured flowers. *Barkeria Skinneri* was formerly named *Epidendrum Skinneri*, but is now generally known by the former name, and we think it quite correct that it should be so. In habit, in florescence, and culture, it is to all intents a Barkeria.

Barkeria spectabilis (Showy B.) is also from Guatemala. We quote the following account of this splendid plant from Mr. Lyons, whose work on the culture of orchids is a most excellent one. Amongst the Guatemalese, this plant bears the name of *Flor de Isabel*, and is one of their votive offerings. It forms a tuft of cylindrical stems, about four or five inches high, each bearing two fleshy lanceolate acute leaves, separated from each other about an inch; the raceme rises out of some dry brown sheaths, and, in the plants that have flowered, bears about six most lovely nodding blossoms; but, according to Mr. Skinner (who introduced it), it varies from three inches to a foot, producing as many as twelve flowers in a raceme. The expanded flowers are nearly three-and-a-half inches across, their colour is a bright lilac. The labellum is white at the base, lilac at the edges and point, and richly marked with small blood-red spots along the middle; below the column, are five purple lines, which pass into three elevated colourless ridges beyond the place where the anther touches the lip. It is with Cattleyas, and such charming and beautiful plants, that this elegant species is worthy to be arranged. This is a correct description of this fine species. It was exhibited, for the first time, by Mr. Brewster, gardener, at that time, to Mrs. Wray, of Cheltenham, in July 1842, at the grand exhibition of the London Horticultural Society, at Chiswick. We were present at the time, and with pleasure record our testimony to the skill shown in its culture. It has never since been shown in finer condition. We remember well the great sensation shewn by the orchid growers present, when Mr. Brewster opened the box that contained his beautiful, well-grown, and finely-bloomed plant. It had, most deservedly, the highest prize given to a single plant awarded to it. Mr. Brewster, with that true liberality which always distinguishes real merit, made no secret of his mode of culture, but immediately published it for the benefit of all future cultivators. We are quite sure he will not think we are taking too great a liberty by copying it for the benefit of our readers too! We quote his own words:—"The plant was imported in July, 1841, when it immediately began to grow; late in autumn it showed flower scapes, but the season was too far advanced to bring them to perfection; it then remained dormant, and lost its leaves, till March 1842, when it again commenced growing, and expanded its first flowers on 12th of June. These were shown at Chiswick in July, and remained perfect for five weeks. The temperature, in which the plant was grown, never exceeded 65°, when it could be kept under by giving air freely; while in winter, it often fell below 40°. Indeed, my only object was to keep out the frost, and I invariably gave a little air whenever it could be done with safety. In the summer, the windows and doors of the orchideous house are open every day, and I am of opinion that the orchidaceæ of Guatemala cannot be kept too cool in this country at that time, for the more air I give, the better they grow. I always, however, keep the house damp." The plant thus exhibited, was grown in a thin layer of moss, in a basket. With that exception, the above treatment exactly corresponds with that which Mr. Plant followed, as we mentioned, at the page quoted above in The Cottage Gardener. We cultivate it chiefly on blocks, hung up near to the place where air is given; syringing freely during the growing season, but very seldom when at rest, not oftener than once a month, or even six weeks in dull weather. We do not think the using of moss any advantage, and peat is quite fatal to its existence. One plant, or rather several small bits, were fastened, two years ago, to a kind of raft, or open bashet, with only one rod round the sides raised above the rest. No moss or peat was laid upon this basket. The plants began to grow in the spring, and made good growth that summer. They have continued to thrive and flower well up to this time; and some of the shoots are eight inches high, and strong in proportion. Another plant, received from Guatemala at the same time, was a mass of shoots in a dormant state. It was fastened to a block, and the year following had made such strong fine growth, that a gentleman purchased it, and was glad to have it for eight guineas. It had then about twelve good stems.

The plants are grown on blocks, without any moss, and are placed as near as possible to the air-giving places, as we stated above. Exactly the same treatment will suit all the genus. It may be summed up in a few words:—Place them on naked blocks, or in a shallow basket, without moss or peat. Hang them up where they will obtain the greatest quantity of air, and keep the house comparatively cool, but always damp. Syringe freely from March to the end of July, after that, very seldom, and only just enough to prevent the roots and pseudo-bulbs from drying to much. The temperature of the Mexican house will suit them well.

There is another species, Barkeria elegans, which was the first of the family introduced from Mexico to this country by Mr. Barker. We are very much afraid it is entirely lost, and we fear that unhappy fate is owing entirely to a mistaken treatment. Had the above method been followed, we have no doubt the plants would now have been thriving and plentiful. Like a number of rare plants now lost, they have been killed with too much kindness.

FLORISTS' FLOWERS.

Auricula and Polyanthus.—These lovely spring flowers will now be awakening from the sleep of winter. The centre of each plant, if healthy, will indicate appearances of growth. They will require a little trimming; remove all decayed leaves, and stir the surface of the soil a little. Should any worm casts show themselves on the surface, turn the ball carefully out of the pot, pick out all that are visible, and pat the ball gently with the hand, which will often alarm the worm that may be concealed *inside* the ball, and he will soon poke his nose out, and work his way out of the imaginary danger. Do not touch him till you are quite sure he cannot slink back again. As soon as you think you have got rid of them all, replace the ball again carefully in the pot, and, if necessary, put a little fresh compost to fill up the pot. A little water of moderate temperature may now be given, but be sure to apply it on the morning of a promising fine day. Cover up securely every evening, however mild it may be. In this country we are never safe from frosts till May sets in with its genial warmth. If these flowers once get crippled by a frosty night, the fine bloom will be sadly spoiled for this season. It will be a good time now to place under cover a portion of compost for the purpose of top-dressing. At this time, an addition to the usual compost, of about one-eighth of three-years-old, very rotten, and mellow cow-dung, would be useful, and help to bring out the blooms fine, both in size and colour. Mix it now with the compost, so as to be ready whenever you begin to top-dress the plants. The time for this operation depends upon the season and the state of the plants. If both are earlier than usual, the top-dressing may be safely done by the end of this month; but, if backward, the first week in March will be early enough. Another important point to be particularly attended to, is to give abundance of air and light on all favourable occasions. Every fine, dry morning, draw the lights completely off, and expose the plants to the invigorating influences of early spring. This will refresh and strengthen them greatly. Even on rainy mornings, give air by propping up the lights;

but until *auriculas* have done blooming, we do not recommend exposing them to even the gentlest shower. *Polyanthuses*, on the contrary, may, previously to the blooms opening, have the benefit of a gentle spring shower. The reason for this difference is obvious. One of the great attractive beauties of the auricula is, the beautiful white powder scattered over the leaves profusely by nature. Now, rain, be it ever so light, will wash off this natural powder, and disfigure, if not positively injure the plants. It is not so with the polyanthus. A gentle shower may be allowed to fall upon this flower with advantage. This difference asks for a separate habitation, and if our florist and amateur friends possess sufficient of each to fill separate frames, by all means use them, as, even in giving the necessary supplies of water, a difference may be made in its application. Auriculas must be watered with a watering-pot with a small spout without a rose, so as not to wet a single leaf; but polyanthuses may have that necessary element applied with a watering-pot with a fine rose, with great benefit, provided they are strong, and have plenty of fine healthy leaves. There is another reason why this difference will be beneficial to the latter. Auriculas are not so subject to the attacks of the red spider as polyanthuses are. It is well known to gardeners, and, we hope, to florists too, that moisture is a great preventive to that destructive insect. In consequence, as happily the polyanthus will bear with impunity occasionally a shower of water, it is advantageous to apply it, either with a rose watering-pot, or to allow a gentle shower now and then to fall upon them.

Carnations and Picotees.—We have nothing to add to our remarks last week upon these flowers, but that it is time to get under cover the suitable compost for potting. It is time to think about putting them into their blooming pots. Have both pots and compost ready for that operation, as it must be done shortly. T. Appleby.

THE KITCHEN-GARDEN.

Potatoes.—Be active in planting *potatoes* in all favourable weather; let this work be finished in the present month. Plant whole sets of a suitable size rather than cut sets, and allow them plenty of room to grow—say from nine inches to a foot from set to set in the row, and two feet to two feet six inches apart from row to row.

Beans.—Still continue to plant broad beans of the best kinds, and to the extent required. Let the soil be rich and good for them.

Peas of early and second early kinds may be sown to any required extent; and both early and second early may be sown on the same day, which will form a nice succession at picking time. Keep a watchful eye on those peas that are already above ground, that they are not destroyed by either sparrows or mice, or by the slugs. If annoyed by the sparrows, strain a string of worsted along each row, as before directed; and if by the slugs use quick-lime dust, applied by means of the dusting-bag; also stir the earth often between the rows. Keep the rows well backed up with dry earth, and if any are ready for sticking let it be done; and a few evergreen boughs run along the outside of the sticks will be found a nice protection from severe frosty weather.

Radishes.—Sow as bountifully as required in the open borders, to succeed the before sown crops; also, thin out those that are up, and sift a little dry earth among them. Give plenty of air to those that are in frames, by taking off the lights in fine days. *Carrots* in frames treat in the same way.

Cauliflowers may be planted out in fine open weather. The ground should be rich and good for them. The plants from frames, or the like places, may be taken up with good roots, and planted in rows from two feet six inches to three feet apart from row to row, and two feet from plant to plant in the row. When all are planted, an inverted flower-pot would be found a good protector, to be put over the plant every night, and taken off every morning; that is, in frosty weather. These will be found a good successional crop to those which were planted out in the autumn, under hand-glasses. Here, under the hand-glasses, let the earth be often stirred, remove any decayed leaves, and be watchful for the slugs.

Cabbages.—Plant freely at this time, of any of the best early kinds, in a well-worked, rich soil; also a little seed may be sown.

Plant *shallots*, *garlic*, and *underground onions* without delay. Allow them plenty of room. If in four feet wide beds, let them be planted in rows lengthways, 10 to 12 inches from row to row, and from six to eight inches in the row.

Parsley may be sown as well as *thyme*, *marjoram*, *savory* and *hyssop*, in some suitable warm border. The old plants of each kind may be taken up and divided, and planted out again in warm open weather.

Spinach may be sown in succession.

Brocoli.—Clear away all decayed leaves from these crops, and be on the look out, on clear frosty-looking evenings, to see that no heads either want to be cut and taken in or the outside leaves turned inwardly over the young growing heads.

Rhubarb may be forwarded much by inverting either large flower-pots, tubs, or hand-glasses over the crowns.

Sea-kale.—Lose no time in covering-up.

Those who have not done so yet, may plant *mint* and *tarragon*, in gentle heat.

Sow *small salading* in succession. W.

MISCELLANEOUS INFORMATION.

OUR VILLAGE WALKS.

(No. 19.)

How surprisingly sudden and unexpected are the changes in our variable climate! In the moment of time, in the twinkling of an eye, the scene of nature shifts, and we are presented with a new and beautiful subject for wonder and delight.

We had been gazing on a scene of snow for one entire fortnight; cold, piercing east winds swept the earth, and so dense an atmosphere hung over us, as completely to conceal the cheering beams of the sun. Occasionally at night the air cleared, and the glittering stars sparkled in their dark-blue setting; but, when morning dawned, the sky was as much overcast as ever, and the sun did not, for many days, appear. All looked so frost-bound, so intense, so steady, that it seemed as if no change could possibly take place; and an intelligent cottager assures us, that, as far as he could observe, this weather was likely to continue "these two months to come." This was on the morning of a Friday, and many farmers had announced their intention of discharging their men the following evening, for no work could possibly be done. This was indeed a gloomy prospect; but are the poor ever forgotten by the

Lord? I appeal to my cottage readers—have one of you ever been tried "above that ye are able to bear?" When a night of sorrow has set in, has not help appeared with the morning's dawn? I am sure there is not one of you that, on looking back, cannot recount many speedy and great deliverances.

In the course of two hours from the time this distressing news was received, on approaching the window, I beheld the weather-cock pointing quietly to *the south!* The snow that had been lazily falling at intervals, had turned into a chilly rain; and the heavy splashing drops that fell from the roof, announced a decided thaw. The following morning not a vestige of snow remained; the beautiful earth appeared in all her natural apparel, and bright gleams of sunshine shot across the valley, lighting it up with a radiance that looked quite like spring. Nothing could be more complete—more like magic—than the change; and nothing could be more cheering to the heart, or more delightful to the feelings. When we threw open the windows, we felt such a soft breeze! and heard that *lofty* rushing of the wind which is so peculiar to the gales of spring and autumn. I am sure that morning, every heart and lip must have uttered—"Thank God," for the sake of the poor labourer.

Spring is not yet come, and we shall have many vicissitudes before it opens fully upon us; but this seemed a kind of earnest—an herald of its approach, and spoke to us strongly of the power, the mercy of our God. Though he "casteth forth his ice like morsels, who is able to abide his cold?" Yet in one moment His Word goeth forth, melting the sternest severity of winter, softening "the clods of the valley," and renewing the verdure with which the summer fields are clad! What a mighty appeal to the heart of man! Who is there that has not some grief, some trial or adversity, pressing them sorely? Who has not, at least some anxiety, that disturbs the peace of an otherwise prosperous course? Cannot the same Hand whose touch has wrought such wonders in the natural world, work in the same resistless manner among the affairs of men? Is there anything too hard for God? Has he not thus, before our eyes, stood up to maintain "the cause of the poor," and need we fear to commit ourselves and all our ways into His gracious Hands for time, as well as for eternity? Clouds conceal the sun from our dim sight, yet he is shining as brightly as ever, above those lowering vapours. How much more bright, how much more glorious, is the Sun that never sets, who carries "healing in" the rapid "wings" with which he flies, to comfort and shield his people!

The very morning of the day on which the thaw took place, I heard the first twitter of the starling that built in some hiding-place upon the roof of the house. It was a cheering sound; and my own little pet canary, whose advancing years have long silenced his once vociferous song, uttered a low, soft note or two, as he sat peacefully within his prison. The instinct with which God has endued the dumb creation, no doubt revealed to these little creatures what man in his vaunted intellect could not perceive, and taught them to utter their simple gladness at the return of spring. Our reasoning powers are misapplied, if they do not lead us to praise and magnify God's Holy Name for all His wondrous works.

A frost for a couple of nights followed the thaw; but it has again given way. There will, of course, be fluctuations; but the depth of the winter is over, and the spring labour will soon begin once more. We may now watch hopefully for the first snow-drop; and how delightful it is to see the little snowy blossoms depending from the slight stalks among the bunches of green leaves! The rosemary has—or ought to have been—blooming already in the cottage gardens: it is quite a winter flower, and should find a place in gardens of high degree, not only because of its early habits, but also for its salutary properties, which were well known to the Arabs and Romans, although it is much less esteemed now. It is excellent in all nervous disorders, taken as tea—relieving head-aches, trembling of the limbs, giddiness, swimmings, &c., when arising from that cause. The tea should be made of the young tops when in flower, fresh gathered. The *weak* infusion is a pleasant and wholesome substitute for tea; but when taken as a medicine, it may be made stronger, and persevered in for some time. A conserve of rosemary tops may be used medicinally instead of tea; it is made by beating up the young tops with three times their weight of sugar. An old quaint writer says, of the conserve of rosemary, that it is "singular good to comfort the heart;" and of the decoction taken in wine, that "it is very comfortable to the stomach, in all the cold griefs thereof, helping both retention of meat and digestion." He also says, "it helpeth the cold distillation of rheums into the eyes, and all other diseases of the head and brain, as the giddiness and swimming therein, drowsiness, and dulness of the mind and senses, like a stupidness." Strong rosemary tea is a most excellent wash for the hair; it strengthens and beautifies it, and has none of the deleterious properties of some oils and pomatums.

The poor are extremely fond of tea; they will procure it often, in defiance of its cost and its bad quality. I have often seen them drinking what I thought was tea, but which proved to be only an infusion of *burnt crusts*, to look like the favourite beverage. It seems to me, that where tea cannot be procured, or only at such a price as the poor ought not to pay, herb teas would be useful, and not unpleasant to the taste. The little strip of garden might contain a store of simples for this purpose; and in the course of a little time, the taste would be accustomed to the flavour, and the stomach benefited by their use—especially of rosemary. The poor are not generally a thrifty class—at least, not in our southern counties. As we travel towards the northern districts, their character, in this particular, improves. It is difficult to introduce new customs; they will often rather go on with the discomforts they are used to, than try what is new and strange; but I think, in the matter of tea, they might profit, without much inconvenience, by a hint. They cannot buy tea, at small village shops, under 3d per ounce at least; they thus drink it at a higher price than some of the higher classes, and have a much worse article. The weekly threepence, when it can be found, would be usefully spent in firing, or even laid by for winter, when additional clothing is so much needed, and wages sometimes fail. Now, rosemary or sage might be pleasantly substituted. The dried leaves of the latter plant are so much valued by the Chinese as a substitute for tea, that they have long been in the habit of exchanging their own fragrant production, with the Dutch, for the dried leaves of sage. They will give four pounds of tea for one of dried sage! Is not this a reproof to the English cottager? Will not this fact induce him to *try* and like an herb so highly prized by those among whom the tea-tree flourishes, that they have expressed surprise at the European taste for that which is so distant and inferior? The rosemary, now putting forth its fragrant flowers, is still used, among the humbler classes, as a funeral decoration. In the olden time, it was always selected for this purpose, but now the custom is not so general. Still, as connected with the dead, it may teach us a useful lesson. It bids us remember that we, also, are hurrying to the tomb—the dark and silent grave, in which there is *no repentance*. It reminds us that "the dust" shall "return to the earth as it was; and the spirit shall return to God who gave it." These are solemn, salutary truths: let us pause and listen. Old and young are alike called upon to hear them; and let us remember, before we go down into "the valley of the shadow of death," that "the rod and staff" of Christ *alone*, can "comfort" us in our passage through it.

EXTRACTS FROM CORRESPONDENCE.

THE EFFECT OF GASES ON OLD AND YOUNG LEAVES.—At page 255, vol. I., of THE COTTAGE GARDENER, Mr. Beaton invites a solution of the following query: "How is it that a deleterious gas will kill the old leaves of a plant, without affecting those leaves that are newly formed on the same plant?" As a mere "amateur," I venture, with great diffidence, to offer the following explanation:—The organs of young leaves not being perfected—I mean those organs by which they inhale and respire not being fully developed—they are, therefore, in *that condition*, not liable to be injured by being surrounded by a noxious gas; whereas, the older leaves being fully organised, *they* are in a state to imbibe the deleterious gas, and are, consequently, destroyed.—T. O.

[T. O. is perfectly right in this explanation; and, moreover, has thus furnished a key which will some day reconcile the existing difference between theory and practice, on the subject of *pruning the grape-vine*—a subject, by the way, which has never yet been explained properly. Practice has been right all along on this point, but is still groping in the dark for the true answer to the question, Why is it right? An unforseen accident in a grapery, some seven or eight years since, revealed the real principle on which this practice is founded to half-a-dozen gardeners, who have since instituted experiments which confirmed their view of the question. But the subject is out of my beat here; and I conclude by answering T. O., that it is not proper to retain vine-leaves which are produced with us after the end of August—that is, on plants which have been growing since the spring.—D. BEATON.]

A DESCRIPTIVE LIST OF CAMELLIAS.

WHITE.

Alba plena.—The old double white, not surpassed by any other; a full double flower of good substance, and handsome form, 2s 6d.

Alba plena, var. fimbriata.—Like the first, with the petals beautifully fringed, 2s 6d.

Alba plena fimbriata, var. insignis.—A large round flower, formed like a ranunculus, 5s. Hugh Low & Co., Clapton.

Candidissima.—The purest white, finely imbricated—that is, with the petals laid over each other; growing less and less to the centre; a good old kind, 2s 6d.

Curvatiflora.—Curved flowered, very double imbricated.

Decus Italicum.—Imbricated form; magnificent flower, of the first order, 2s 6d.

Duc de Brabant.—Pœony-shaped; sometimes imbricated; deep pure white, 2s 6d.

Edita.—Milk-white; finely imbricated; centre well raised very double, 5s.

Frederica alba.—Pure white, imbricated, 3s 6d.

Grunellii.—Very pure white; finely-formed petals.

Harrisonii.—Very round petals; rather small flowers; imbricated, and of the purest white.

Innocenza.—Of the purest white; fine form; a superb flower.

Magnifica.—Superb, very double, large, and imbricated.

Martha.—Very grand, and perfectly imbricated.

Myrtifolia alba.—Raised by Dr. Herbert, the late Dean of Manchester, from imbricata alba, a beautiful well-shaped flower.

Nobilissima.—Very pretty, pure white, and of a good form.

Reine des Vierges.—Perfectly imbricated, and of a pure white.

ROSE OR PINK.

Apollinea d' Italie.—Imbricated; very double.

Ariadne.—Another of Dr. Herbert's seedlings; very pretty; pœony-shape.

Caroline.—Large flower; delicate rose.

Chandlerii elegans.—First-rate flower; fine form; delicate rose.

Felecite.—Fine large flower; very handsome; first order.

Floyii.—Lively rose; large petals; well-rounded; imbricated; stamens and pistils visible; very pretty.

Hendersonsii.—Fine form; delicate rose.

Lefebvriana.—A finely-formed variety, of a most beautiful rose.

Pictorium superbum roseum.—A grand flower; well imbricated; superb.

Pulasky.—Imbricated rose; superb form.

Rubini.—Admirable satin rose, perfectly imbricated.

Reticulata.—Large petals; deep rose; fine large flower.

Triumphans amablis.—Charming rose; first order.

Vexillo di Flore.—Imbricate; very grand; superb flower.

Triumphans de Gand.—Very grand; pœony-shaped; brilliant rose.

Woodsia.—Deep rose; very large.—T. APPLEBY.

(*To be continued.*)

TO CORRESPONDENTS.

⁎ We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense; and we also request our coadjutors *under no circumstances* to reply to such private communications.

VINE AGAINST BACK-WALL OF VINERY (*W. H. B.*).—*If* in your vinery you keep your vines solely to the rafters, and keep your back-wall whitened so as to reflect heat and light, you may confidently train vines against the back-wall, placing a main shoot opposite the centre of the light. Mind, however, your success will depend upon having a space in the centre of each light unoccupied by the foliage of the vines under the rafters, and, also, to having no such thing as a stage for plants to prevent the rays of light reaching the back-wall. In such circumstances, we have had fine-coloured black grapes, but we should recommend you to try chiefly, in such a position, the *Dutch sweet water*, and the *Royal muscadine*. *Vines in pots* would also answer admirably being placed upon a shelf in such a position. You would have the produce *earlier*, but with less certainty, and with more trouble, than from vines planted out. Failing to adopt these means of covering the back-wall, you might plant *figs* with great propriety. If you did not commence forcing until the middle of February, you might plant it with *Camellias*. Being stimulated at the early part of the season, they would set their buds early, and commence blooming in the end of October, continuing to do so during the winter, when there would be nothing interesting in the appearance of the vines.

AURICULAS AND HEATHS IN THE SAME HOUSE (*Ibid*).—We see no objection in the shape of the *air* that both require; but we fear that the shade so indispensable to the Auricula, at its most interesting period, would not agree with the heaths. See what friend Appleby says.

ERRATA.—At p. 234, for Mrs. Think *on*, read Think *in* Time; col. 2, fifth line from top, read *shoot* for *short*; 14th line from top, for *heat*, read *touch*; 41st line from top, read *Persicum* for *Persian*; 51st line from top, read *vegetation* for *regulation*; 52nd line from top, read *latter* for *laeter*; 56th line from top, read *leaves* for *bows*.

GREEN FLY ON BLACK CURRANTS (*Omega*).—The louse, or Green fly, on the underside of your black currant-trees, is the *Aphis ribis-nigri*, or Black-currant louse. It is of a pale whitish-green colour. Cover each bush with a table-cloth, or other covering that will retain the smoke, and then fumigate it with slowly-burning tobacco. *Tanner's-bark*, when thoroughly decayed, is a very good manure. Even applied fresh to *heavy* soil, it helps to improve its staple, by rendering it more porous.

Jerusalem Artichokes (*F. C.*).—The reason these become black, when boiled, often arises from the knife used in peeling them, or other iron in some mode coming in contact with them. If their skins are brushed off with a scrubbing-brush, and no iron is allowed to touch them, they do not turn black. The acid they contain strikes this colour with iron.

Rhododendrons (*Beta*).—We fear that these planted "in a very stiff soil, almost all clay, and pretty well manured with stable manure," are placed in jeopardy. However, they are on a bank, and this is in their favour; but we should incorporate in the surface-soil about them as much sandy peat as you can afford, mixed with equal parts of sand.

Binding The Cottage Gardener (*A Subscriber from the Beginning*).—You can obtain a very handsome cover, for binding the two volumes in one, at our Office, for less than eighteen pence; and any country binder can bind into it. You may remove your *mulberry-tree* in the autumn, if you use the precautions we have given for removing trees generally, in former numbers. Eighteen years is mere infancy in a mulberry-tree.

Sub-surface Manuring Asparagus (*J. D., Old Brompton*).—Our correspondent says, "I have placed two inch perforated zinc pipes, about nine inches below the surface, between each two rows of asparagus plants imbedded in the cuttings of the beds in the autumn, and long new wheat straw, in order to insure percolation. My manure-pit contains about two loads of horse-dung, over which is poured daily the sewage of a house inhabited by five persons." This liquid-manure you may begin to apply in April, putting to each bucketful a similar quantity of water. Apply twice a-week, and give four bucketsful of the mixture each time to each bed 24 feet long. The tiles, &c., you mention are expensive and inefficient.

Cochin-China Fowls (*J. Crisp, Hope Cottage, Norwood*).—Our correspondent wishes to negotiate for an exchange for these of some genuine Chinese pigs.

Ranunculuses.—In the notice of Ranunculuses at page 236, the prices were quoted from an old list; and we are informed that those of 1850 are considerably reduced. The senior partner of the firm of Tyso and Son, retired through age in 1848, and the business has since been carried on solely by Carey Tyso. See advertisement of last week.

Joints of Hot-water Pipes (*M. D——, Devon*).—These are often troublesome if not put together by good workmen, and if used before the stuffing has become sufficiently set. We know of nothing better than—when the joints are quite dry, plugging them full and tight, driving it in with a chisel and mallet—tow thoroughly mixed with white lead. Let it dry for seven or eight days before using.

Gladioli (*Floramica*).—You potted these last October in a mixture of equal parts of rotten turfy loam, leaf mould, and silver sand; and you potted Ixias in the same compost. The leaves of all look greenish-yellow, and well they may. Your compost was only suitable for Gladioli, when planted in the open border, and is unfit for Ixias under any circumstances. You cannot cure the evil now; and if the bulbs were well managed last year they will flower well enough, but their condition next year will be bad.

List of Roses (*W. Stiles*).—You send us a list of 120 roses which you have, and ask us to recommend you two dozen more. This we do willingly; but *we do beg of you, and of all our readers who send us lists of plants, to arrange them alphabetically*; the labour is immense when a long list is sent "promiscuously," and particularly when we are requested to add thereto. We recommend you to add to your collection the following:—*Hybrid China*—Countesse de Lacepede, Gloire d'Couline, General Kleber, Madame Plautier. *Hybrid Provence*—Duchess d'Orleans, Princess Clementine (the best white rose). *French*—General Joy, Œillit Parfait, Shakspeare.

Oranges (*Percy, A. R.*).—A good compost for these is a fibry loamy soil, enriched with a little rotten manure, with top dressings of cow, deer, or sheep dung, when the plants are growing. If well drained, the plants should not be shifted often; vigour is more profitably given by rich surface dressings. When growing in spring and summer, the application of the syringe to the foliage will be useful.

Hoya Carnosa (*Ibid*).—Have patience with this beautiful plant; it is none the worse for being a little shrivelled and drooping now. Water the dry soil when you can command a temperature of 50°, but not until, by frequent syringing of the head, you have somewhat swelled out the stems and leaves.

Giving Air (*Ibid*).—You may put your ventilator through the glass or board at the top of the house, as you propose. We would prefer having a sash, or part of a sash, made to open or slide; or an opening made in the back wall, on the board to which the sashes are joined, nine inches in width, cut into several openings, 5 inches wide and 18 inches long, furnished with lids, and hinged so as by means of a rod and pulley to be opened and shut at pleasure.

Greenhous Management (*A. H.*).—You will see that Mr. Fish has done something to meet your case.

Heating Greenhouse (*C. P.*).—If you will oblige us with a drawing and a description, with the result of your later experience, we will gladly give it insertion, though before published.

Cheap Orchids (*T. Lawson*).—Orchids, on account of their slow propagation and expense of keeping, must always be comparatively dear plants. We do not envy your friend his possession of 12 that only cost 30s.; we imagine they are either worthless or such small bits as will take years to bring to perfection, especially in a cool stove amongst such things as gloxinias, achimenes, &c., that you mention. We will try to comply with your request by giving a list of 12 orchids we consider cheap, and that will grow in a cool stove; at the same time we must remark that we consider the list given at p. 169 of this volume (to which you refer) as being, for good healthy plants, a moderately priced one. Acropera Loddigesii, 5s; Aspasia epidendroides, 5s; Barkeria Skinneri (small), 10s 6d; Bletia hyacinthina, 3s 6d; Calanthe veratrifolia (strong flowering plant), 10s 6d; Cattleya Forbesii, 5s; Cymbidium aloifolium, 5s; Cypripedium insigne, 5s; Dendrobium pulchellum, 5s; Epidendrum fragrans, 3s 6d; Lycaste Harrisonii, 5s; Oncidium papilio, 7s 6d.

Fuchsias for Exhibition (*Amicitia*).—The following are two sets of fuchsias that will be good for exhibiting at a country show. The first are chiefly new, and the second are distinct sorts, that, if well grown, will obtain a prize at any exhibition. You may obtain them by writing to Mr. Appleby, Pine-apple-place Nursery, London: *First set.*—Beauty supreme, 1s 6d; Elegans, 3s 6d; Elegantissima, 3s 6d; Elizabeth, 1s 6d; Gem of the West, 3s 6d; Marchioness Hastings, 1s; Scarletina reflexa, 1s; Corallina, 1s; Splendida, 2s 6d; Purity, 1s; Sapphira, 2s 6d. *Second set.*—Exoniensis, Beauty of Leeds, Delicata, Dr. Smith, Napoleon, One-in-the-Ring, Adrienne, Rose Quinial, Serratifolia, Formosa elegans, Crimson King, Ne plus ultra. These are 1s each, or 9s the dozen.

Carnations (*M. N. O.*).—The carnations mentioned by Mr. Appleby will grow in a sheltered border out of pots. They will do to plant out towards the end of March next. Order them soon, or you will have to take what plants are left unsold, if you wait till then.

Begonia Fuchsioides (*T. W.*).—The strong shoots that spring from the bottom of the plants should be removed entirely, as soon as they appear, or they will rob the rest of their strength. Nip off the tops of the others, to make the plants grow bushy.

Pine-apples (*Ibid*).—For summer fruit, as you wish to sell your surplus, grow the Ripley, and the Old Queen; for winter, the Black Jamaica, or Montserrat, as it is called in the north. These fruit early, and, consequently, pay best. Add a Cayenne or two; it is fine and good, but not so profitable. All the other kinds are not fit for your purpose.

Failure in Forcing (*A Young Beginner*).—Your cucumber and melon leaves shrivel, and your plants never unfolded their blossom, but the leaves became yellow. Deficiency of atmospheric moisture is one of the secrets of your ill success, if we can understand your plan aright. As usual, however, you have not stated all the necessary data; you should have said what bottom-heat existed when you were in "full work;" also whether you receive any atmospheric moisture from the tank-chamber. As to command of heat, you should know that, from the position of your flue, in the front of your pit only, one-half the heat will ascend at once to the roof and be thence radiated, instead of being compelled to traverse the body of the pit. We suspect you have too much bottom-heat; can you not put sliders in the front and back of the chamber to let heat with moisture escape at pleasure into the atmosphere? You may also add dishes, or anything to hold plenty of water, on the top flue. By such means you may grow pines or anything else, only, do not burn their roots.

Hazel-leaved Bramble (*C. Robson*).—This is found wild in many parts of Great Britain, and requires no particular cultivation; its branches, if pegged down into the soil, will root at every joint. Every rooted joint will form a plant; and these may be moved into any soil or situation from October to the end of February. It is the *Rubus corylifolius* of botanists.

Leaves as a Source of Heat (*J. W. Flamark*).—The leaves you collected were decayed, and this is the reason they have not given you heat sufficient. To obtain heat from their fermentation or decaying, you must use them when freshly fallen, or preserve them dry until you require them.

Ink for Zinc Labels (*G. G.*).—Powdered verdigris, 1 drachm; powdered sal ammoniac, 1 drachm; lamp-black, ½ a drachm; water, 10 drachms. Mix these in a two-ounce phial, and shake it every time before using. It will be ready as soon as the verdigris and sal ammoniac are dissolved; and a clean *quill* pen must be used. Rub the label bright, but rough, with coarse sand-paper, before you attempt to write upon it.

Bees (*J. T. L.*).—If you wish to have a swarm, remove the top hive at once. (*J. V.*).—The best time to purchase a stock is next month, for you are then pretty secure in obtaining a strong stock; but you will have to pay more for it than if you wait until May, and buy then the first swarm that is purchaseable. You can get all, or any, of the back numbers of The Cottage Gardener through your bookseller, as we have had the early numbers reprinted.

Pipes of Hot-water Boiler (*E. Green*).—Have the flow-pipe inserted as near the top of the boiler as you can, and the return-pipe as near its bottom.

Hyacinth Offsets (*A. A. Clericus*).—Do not remove these from your potted hyacinths. If you wish to propagate from your *dahlia tubers*, you must move them into heat, and cut off and pot the shoots as they appear. You will see more on the subject, probably, shortly.

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WEEKLY CALENDAR.

M D	W D	FEBRUARY 14—20, 1850.	Weather near London in 1849.			Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
21	TH	Sun declinat. 10° 34′ s.	T. 51°—42°.	W.	Rain.	5 a. 7	23 a. 5	2 45	9	13 55	52
22	F	Dartford Warbler goes.	T. 52°—35°.	W.	Rain.	3	25	3 51	10	13 47	53
23	S	Sweet-scented Coltsfoot blooms.	T. 50°—34°.	W.	Fine.	1	27	4 50	11	13 39	54
24	SUN	2 SUN. IN LENT. ST. MATT. DS. CAMBRIDGE [B., 1774.	T. 47°—37°.	N.W.	Rain.	VI	29	5 40	12	13 30	55
25	M	Siskin goes.	T. 51°—34°.	N.W.	Rain.	56	31	6 21	13	13 20	56
26	T	Godwit goes.	T. 47°—22°.	N.	Fine.	54	32	morn	○	13 10	57
27	W	Velvet Duck goes.	T. 50°—30°.	S.	Fine.	52	34	7 a. 3	15	13 0	58

ST. MATTHIAS was one of the seventy disciples; and when the vacancy occasioned by the death of Judas Iscariot occurred, he was chosen by lot (Acts i. 26) to be his successor to the apostleship. He was deputed to preach the Gospel in Cappadocia and Colchis; and returning thence to Jerusalem, about A.D. 62, he was seized in Galilee, and carried before the high priest, Ananias. By the command of this hierarch, he was first stoned, and then beheaded with an axe—the instrument of death usually represented in drawings intended to represent this apostle.

METEOROLOGY OF THE WEEK.—In the last twenty-three years, the average highest and lowest temperatures of the above seven days, at Chiswick, have been 47.2° and 34.3°, respectively. In the 161 days of those years, rain occurred during 83, and 78 were fine. The highest point reached by the thermometer during the period was 62°, on the 27th, in 1846.

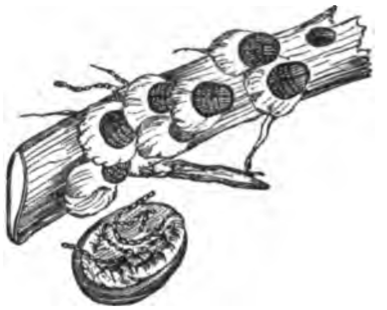
NATURAL PHENOMENA INDICATIVE OF WEATHER.—When birds of prey, such as the *kite* and *raven*, soar very high in the air, they indicate a long continuance of fine weather *Candles* and *lamps*, whether of oil or gas, burn less bright, both immediately before the arrival and during the continuance of wet weather; the flame crackles, and a fungous excrescence accumulates around the wick, owing to the combustion being less perfect than when the air is dry. *Larks* flying high, and continuing their song for a lengthened time, indicate prolonged fine weather.

RANGE OF BAROMETER—RAIN IN INCHES.

FEB.		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
21	B.	30 296	29.813	29.371	29.528	29.946	30.098	30.279	29.790	29.998
		30.162	29.771	29.326	29.235	29.757	30.091	30.235	29.595	29.786
	R.	—	0.16	0.12	0.14	—	0.01	—	0.11	0.06
22	B.	30.345	29.753	29 351	29.660	29.466	30.109	30.207	29.478	29.828
		30.323	29.616	29.246	29.262	29.437	29.912	30.259	29.142	29.693
	R.	—	—	0.02	0.03	0.10	0.21	—	0.08	0.01
23	B.	30.323	29.444	29.519	29.935	29.467	29.861	30.255	29.341	29.996
		30.298	29.167	29.449	29.651	29.377	29.785	30.209	29.002	29.839
	R.	—	0.11	—	0.44	0.16	0.07	—	—	—
24	B.	30.304	29.171	29.640	29.614	30.018	29.690	30.197	29.323	29.657
		30.298	29.115	29.612	29.055	29.655	29.587	30.098	29.172	29.613
	R.	0.01	0.11	—	0.10	—	0.16	—	0.14	0.28
25	B.	30.308	29.250	29.619	29.478	30.116	29.569	30.136	30.050	29.493
		30.076	29.180	29.596	29.000	29.904	29.406	30.108	30.031	29.326
	R.	0.07	0.07	0.26	0.10	0.26	—	—	0.16	0.92
26	B.	29.872	29.570	29.601	28.922	29.768	29.800	30.124	29.909	29.853
		29.638	29.367	29.326	28.624	29.624	29.663	30.063	28.452	29.435
	R.	0.04	0.04	0.03	0.26	—	0.01	—	0.48	—
27	B.	29.735	29.470	28.933	29.447	29.945	29.648	30.100	29.103	30.034
		29.368	29.377	28.848	29.382	29.918	29.623	30.076	28.795	29.978
	R.	0.07	0.05	0.19	—	—	0.05	—	0.22	—

INSECTS.—One of the most common pests of the grape is the Vine Scale (*Coccus vitis*). It preys upon the stems and branches of the grape vine, both in the open air and under glass. It seems to be the same species which also attacks, occasionally, the peach, nectarine, and plum. It is, says Mr. Curtis, a longish brown insect, which in old age assumes a blackish brown colour, and becomes hemispherical and wrinkled. The females are shield-like, being convex above, and flat, or concave below; they are furnished with six small legs, which, when the insect is old, become part of the substance of the body. On the under side of the insect is a sucker, with which it pierces the cuticle of the plants, and extracts their juices. Soon after impregnation the female dies, and her body becomes a protection for the eggs, which are covered with long white wool, and sometimes completely envelop the shoots of the vines, or of plants, growing underneath them. The males are furnished with four wings, and are apterous. Their powers of propagation are immense; and, where they once become very numerous, they are exceedingly difficult to eradicate. This species belongs to the true genus Coccus, characterized by the female having a scale inseparable from her body. While young, both sexes are alike; but the male larvæ produce two-winged insects, with two tail threads. The females have no wings; and their dead bodies, beneath which the young are sheltered, appear as in the annexed woodcut.

Whilst the leaves are on the vine, if any species of scale appears on its stem and branches, the least offensive remedy is to paint over the whole with a strong solution of gum arabic or starch; allow it to remain on for a week, and then wash it off. But the most effectual remedy is to brush them over thoroughly twice, after an interval of a day, with spirit of turpentine. To prevent the recurrence of the plague, a very effective mode, in autumn, is to scrape away and burn all the rough bark, and then, with a rough brush, to paint over the stem and branches with a creamy mixture, composed of ½ lb. of soft-soap, 1 lb. of sulphur, and ¼ oz. of black pepper, to four gallons of water; boil together for twenty minutes, and make it thick enough to adhere to the wood like paint. If it does not, thicken it with lime, adding sufficient soot to take off the glaring white colour of the lime. The proportions are of little consequence, the object of this and similar washes being, by adhering to the wood, to prevent the eggs or larvæ of insects from coming to life (*Gard. Chron.* 1842, 840).



IT is more than an ordinary hardship upon the seedsman and florist, that some of our contemporaries are scourging them for having voluminous catalogues, whilst every purchaser observes, "What nice complete lists there are in Mr. A——'s catalogue. In Mr. B——'s there are not half so many." We see no objection to these long lists, and we consider that that seedsman or florist is the most deserving of encouragement, who has the fullest and most complete catalogue. It would be very hard if it were otherwise, for the public differ in what they require, and are clamorous if they cannot obtain what they prefer.

Then, again, it is an unjust complaint that new varieties are unnecessarily multiplied, for one of the first questions put by an amateur is for "anything new;" and we should regret if it were otherwise, for it is this desire for novelties which has raised the standard of the dealers in seeds and plants from being petty chapmen at stalls in Westminster Hall, and elsewhere, to the position they now hold among the best informed and most enterprising merchants of our times.

At present we will restrict our observations to the numerous lists of *Kitchen Garden Seeds* now before us; and though in these lists there are under each vegetable particularized a long enumeration of varieties, there are very few, we may say almost none, that ought to be omitted. But though the omissions need be few, yet particulars relative to each variety should be much more full. We gave an example of the information we consider a seedsman's catalogue ought to contain, by giving (at page 194) a list of 41 peas, with the particular characteristics of each; and we are well pleased to see that since then the *Gardeners' Chronicle* has given a similar list, and added the additional useful information as to which varieties so closely resemble one another as to be considered synonymous.

If a seedsman's catalogue contained such guiding information as this, the more numerous this list of varieties the better; for the taste of purchasers varies, and the soils they cultivate will produce some varieties in perfection, whilst other varieties on the same soil are unproductive, or uncharacterized by their usual excellence. We will take the selection of peas made by our contemporary above quoted as an example. He recommends the Prince Albert, Auvergne, *Bishop's New Long-Pod*, Bedman's Imperial, *Knight's Tall Marrow*, and *Fairbeard's Champion of England*,—all good peas; but the three we have marked by italics will not succeed, except on a soil much more tenacious and richer than the others.

For a light, moderately fertile soil, such as characterizes the majority of gardens, we can recommend, from long experience, *Prince Albert*, for the crops to produce from the end of May to the middle of June; *Ringwood Marrows*, for those from the middle of June until August; and *Knight's Dwarf Marrows* for the remainder of the season. All tall-growing peas should be excluded from small gardens. Partly in the place of the Knight's Dwarf Marrows we mean to try *Hair's Dwarf Green Mammoth Knights*, which have a high character, but we cannot speak of them from our own experience.

Then again, as to *skinless peas*, those varieties which are eaten like kidney-beans, pods and seeds together. So much do tastes differ, that in France they are largely cultivated, and in England are scarcely known; yet if our readers will try them, and we recommend the *Tamarind* variety, we think they will grow some every year afterwards.

We will, next year, proceed with an enumeration of the various kitchen-garden varieties of vegetables which we prefer; and will conclude to-day with a warning to the seedsman against selling, and to the purchaser against sowing, seed too old or imperfect from any other cause. No purchaser cares whether he pays a few pence more, so that he may be secured from this grievous disappointment; and every seedsman may so secure him by trying whether each sample of seed will germinate before he begins to distribute it across his counter.

It is quite impossible for seedsmen to be absolutely certain of keeping each variety quite pure, or "true to stock," for bees will bear farina from crop to crop, though separated by miles of intervening space; but seedsmen need not serve their customers as one we know did last year, by selling Short Horn Carrots for Altringhams, and Mangold Wurtzel seed for that of the Red Beet. Such conduct as this is unpardonable, and needs no comment.

THE FRUIT-GARDEN.

Pruning, &c.—It will be remembered that, at page 106, we entered into the subject of pruning hardy fruit-trees, more especially as to those general principles which are, less or more, applicable to all. A promise was then made to carry out what remained of the subject at an early opportunity; with such, then, we proceed.

Rough Espaliers, or Dwarf Standards.—The apple is to be found in this character in most English gardens; for the ornamental trellis, on which in some form we think all these ought to be produced, is too expensive at present to be within reach of every one. Still, there can be little doubt, that as the management of fruit-trees in general becomes better understood (and as our amateur cultivators in investigating and understanding first principles will set aside all rules, merely as such), that the trellis will ultimately almost entirely supersede the rough espalier. Higher modes of culture, based on sound information, will insure the production of crops with much greater certainty, and of a superior character; and thus the trellis will be made to repay the outlay of first construction, and also of coverings, which surely nobody will grudge after the expense of the trellis.

Our business now, however, must comence with the *dwarf standards*. The first thing we would point to here, is the tendency of such to outgrow the limits intended for them; hence we frequently see fine apple-trees cut down in what should be considered their prime, merely because from their spreading character they disarrange a plant which has for its object systematic neatness. We may here diverge so far from the course of our text as to say, that most of these over-growing trees may be saved, by submitting them to a very severe course of branch-pruning, provided root-pruning is resorted to. Without the latter in a corresponding degree to the amount of pruning carried out with the branches, a profusion of wild and unfruitful spray will be the same result. We have known persons continue year after year to close-prune in this manner, and wondering the while that they cannot induce a bearing habit; little considering how they war against the necessary condition of fruitfulness, which is a highly elaborated state of sap.

In pruning rough espaliers, the age of the tree must be taken into consideration, together with its form. If the tree be young, some *close* pruning may be necessary for a year or two, in order to induce sufficient shoots to complete the form of the tree, which, with most cultivators, is that of a bowl, or something after the manner of a well-blown tulip. With such trees it is necessary to keep the centre very thin, in order to permit sunlight to penetrate to the north side of the tree, without which the produce on that side will be inferior both in colour and flavour. In shortening young trees to cause them to furnish better wood, care should be taken to cut to one outside bud: this throws the terminal shoot, when developed, at a greater distance; and such buds generally shoot in a kind of curve, which is favourable to the completion of the form intended.

In all cases of pruning rough espaliers, it is best to thin out first all unnecessary shoots; the shortening back is the last operation. In thinning out, all cross shoots should be removed from the planting period, for it is folly to suffer them to remain until they commence bearing, and then to cut them away. In trees of some size and strength a great deal of young watery-looking spray is apt to be produced from the older branches; this should be pruned away, for it is in vain to expect to produce fruit spurs of any value in the interior of the tree by a "a spurring back" system; and, indeed, if such should be the case (although the produce might answer for boiling or baking purposes, yet it would not answer for the dessert), such trees should receive a little root-pruning immediately on the heels of this close-pruning. The production of so much side spray proves that there is a too powerful action of root for the extent of top. Such over-excited subjects may frequently be found in kitchen-gardens where high vegetable culture is carried on. The oft repeated and heavy manurings necessary for asparagus, celery, cauliflowers, &c., are rather too much for trees under a close-pruning system. It is rather difficult to state how far distant the reserved shoots should be; on an average, we should say, the main leaders of dessert apples should be about eight inches apart; kitchen apples may be somewhat closer. In determining distances, however, the size of the leaf and general habit of the tree should be taken into consideration. Nobody would think of carrying the leaders of a *Ribston pippin* at the same distance as the *Old Nonpariel:* the first has a capacious leaf, and is of a sprawling habit; the other grows nearly upright, and has a lanceolate leaf little larger than a willow.

As to shortening, this must depend on several circumstances; some based on principles, others on convenience or expediency. As an instance of the former, we would point to the propriety of a regular annual shortening—rather severe in amount—during the first three years of the planting. If this course be not pursued, the consequence is, in the majority of cases, that one or two branches soon assume the character of leaders, and, in technical phraseology, "run away with the tree." But by early shortening a host of spurs are developed at a low level—a point of much importance in a dwarfing system; added to which, this "knifing" has a tendency, if judiciously exercised, to equalize the strength, not, however, in an equal degree to summer-stopping; this is the most powerful agent in equalizing the strength, as we shall show by and by. As an instance of shortening for convenience or expediency, it may be stated, that it is not eligible in shortening to shorten two or more shoots side by side, exactly at the same height. In so doing, the terminal buds shoot near together, and produce too severe an amount of shade; whereas, by taking care in shortening that the points of those contiguous to each other are of different heights, the foliage all through the tree is more equally divided. Where the ordinary espalier is made to assume the punch bowl figure, the points after shortening should rise in grades from the exterior, each successively higher than the one outside it.

Trained Espaliers.—These stand next in order; and, as the pruning season hastens to a close, we must say a few words about them. The shortening described as necessary with the rough espalier, in order to develop spurs, or the rudiments of spurs, is equally necessary here during the first three or four years. Afterwards, we advise the tying-down system. Espaliers are trained in different ways; some perpendicularly, others on horizontal or table trellises. Some, also, in saddle form, as at her majesty's gardens at Frogmore. Whichever plan is adopted, the same principles must be attended to as with the rough espalier, or dwarf standard, modified occasionally by the end in view, viz., to clothe equally all parts of the trellis, and to cause the side buds to develop in an equal way.

Be it understood, however, that we do not place our main reliance on these side developments after the fourth year. We would, as before observed, reserve annually all the best of the short jointed and early ripened young shoots, and tie them down alongside the main branches, cutting them away again if they should in future years assume a barren appearance. Much care is necessary during the first three years of the trained espalier; to furnish the trellis in an equal way, a sharp look-out must be kept in order to coax the shoots into the desired places. If the trees continue rather spare, and do not furnish well, a top dressing, and even liquid manure may be resorted to, during the growing season, and the knife applied in order to force a more liberal development of shoots.

Wall, or Fence Trees.—We find that our space will narrowly permit us to offer a few general remarks. In pruning *Peaches* and *Nectarines*, much depends on the care bestowed on them at the previous summer's disbudding. Where trees are attended to as they ought to be in summer, which is not the case in one garden out of twenty, there will be little work for the knife at the winter's pruning Some thinning out, nevertheless, will be necessary; and in shortening back the young wood, the only true guide is the maturity of the wood. Mature shoots are higher coloured and shorter jointed; the buds, moreover, are much fuller. Let as much of the points be shortened as will remove that portion which appears unripe: such is readily distinguished, and in general constitutes about one-fourth of the shoot. *Apricots* merely require the foreright snags to be cut back to spur eyes; little thinning is necessary, and little shortening of the leaders. Any likely-looking young shoots may be tied down on the branches, as advised for pears. *Plums* on walls or fences require very similar management, in regard of pruning, to the apricot. To cut away foreright snags, to thin out where crowded, and to tie down useful spray, is all that can be done. Shortening is entirely dispensed with on principle, with those in a bearing state. Young trees, however, require as much shortening as will enable them to fill the space allotted to them. *Cherries* require, perhaps, less knife-work than most other fruits. After producing shoots enough to fill the wall or fence, little is needed, especially with the larger kinds. The

Morello requires most. These need a good deal of thinning in general; still this depends, as before observed, on the quantity of young shoots laid in during the previous growing season.

R. Errington.

THE FLOWER-GARDEN.

Propagation.—In continuation of this subject, which at one stage of our progress was a source of great mystery, and, I may say, of great difficulty too, to the whole race of our best gardeners, florists, and nurserymen. Yes, the most expert propagator in London or Paris was once as ignorant of how to strike, or root, a cutting of any kind of plant as is the humble cottager who is now, for the first time, resolving in his mind to make an actual experiment this very spring on some shoots which he believes may be spared from the only plant he possesses, and which he probably would never have dreamed of buying at all, had it not been that good fortune had thrown a number or two of The Cottage Gardener in his way, and which he took up "promiscuously" to read, because he happened to have had nothing better to do at the time. Hundreds, with no more experience than this worthy cottager, I am persuaded, will follow me word by word, and sentence after sentence, with such a degree of interest as few can understand who have not yet struck their first pot of cuttings. How careful, therefore, ought I to note down every particular; and, after all, I shall probably miss some things that ought to be explained or hinted at. Be that as it may, I would strongly advise young beginners, who may have already failed to root any kind of cuttings, or have had only a partial success, to write forthwith and let us hear, in as few words as possible, what they want more particularly to know about their cuttings, and say also what kind of accommodation they have for performing the operation. Nothing will be easier, or more pleasant, than to answer such letters just now, as we are all over head and ears in this very work, and shall continue so for the next six weeks; so that, between one way and another, every reader of The Cottage Gardener ought to learn how to grow his own cuttings this season. The money which any one, having but a small flower-garden, might save by thus learning to grow cuttings effectually would soon buy a year's volume of this work—to say nothing of the pleasure of doing the thing properly.

We left off last week at making cuttings of *verbenas:* the pots were all ready; and now we shall plant the cuttings, some of which are cut close under a joint, and some lower down. We must, therefore, part the two kinds, and put each into a separate pot, as they would not be all rooted at the same time; and it is always a great disadvantage when this happens where they have been close forced, because those which root first would spindle up too much before the others were rooted. For this reason, also, it is not a good plan to take any cuttings from old stems or shoots that were made last autumn—not but that they would root, but they would be too long about it. Young tops, or green side pieces, that have grown since the new year are best—not only of verbenas, but of all the soft plants, such as *petunias, anagallis, American groundsel*, and the like. As these cuttings are being made, lay them on a piece of brown paper, or in a flower saucer, or on something that is quite clean, as if dust, or dirt, or sand, gets among them it will be troublesome to wash it off; and if potted in a messy state they will never do much good. The first row of cuttings is planted round the sides of the pots, as close to the rim as possible, and as close to each other as that their leaves are not in contact with each other; and when a cutting happens to have the leaves rather large, we place them edgeways—if you know what that is: we mean, one row of leaves pointing to the centre of the pot, and the other row towards the outside of the pot. This is a great economy of room, as the cuttings that way may stand as close together as if they had no leaves at all. For very young beginners, I would advise to have only this one outside row in a small pot; but after a little experience the whole surface of the pot may be planted in circles or rings—only, the leaves must be kept free from each other, as where two of them lap together the wet hangs there too long, and will damp them in one night; and damp is very infectious, and would soon spread over a whole potful of cuttings.

A *dibber*, or planting stick, may be made of any piece of hard wood, and in shape like a skewer, but the point need not be quite sharp, and the length anything from four to six inches; but the length and size of the point must vary according to the length and thickness of the cuttings. I have seen a "set" of cutting dibbers made very beautiful out of bone, and out of boxwood, and polished; and I have seen thousands of cuttings planted with a common pencil. These small cuttings must never be planted more than half an inch deep; and anything less than that will do, provided you get them a firm hold. The more shallow they are planted the faster they will root; and the more loose the compost is under them the better for the young roots, as they can grow away in it more freely. I have been disappointed once or twice by a good plantsman from a nursery, who could strike *heaths*, and any kind of hard-wooded plant, but he could not get on any how with such simple things as these soft cuttings. Sometimes he would lose one-third out of a pot, while one in a hundred ought to be considered bad luck. The reason for this was, that he adopted the nursery way of pressing down the soil and sand very hard, both before he watered the pots and after; indeed, he would ram the compost as if he was loading a gun. All this is necessary to be done when the cutting pots are intended for *hard-wooded cuttings*, which take a month or two to root; for unless such precautions are taken, it is found in practice that air will enter the sand, and ripen or harden these cuttings to such a degree that they would never root at all. But for *soft flower-garden cuttings* the compost and sand can hardly be too loose. If the cuttings can be made to stand upright until they are settled by the first gentle watering, it will be better for them; and when they do root, this loose compost will allow the young tender roots to spread rapidly through it; therefore, it is best to use it that way.

There is another erroneous practice with respect to cuttings, founded on a misconception of a physiological law, which may be briefly stated thus. The more leaves a cutting is able to carry, or is artificially made to carry, the sooner it will root, because such leaves are the agents by which roots are formed, generally speaking; but there are many instances in which cuttings will form roots in the absence of any leaves; for instance, cuttings of *roses* without leaves, if put in last November, will be rooted, and that to a considerable length before young leaves are formed late in the spring. In such instances, the cuttings were charged with ripe sap by the leaves of last autumn, and from this sap they are enabled to form roots after the leaves are gone; but these are exceptional cases. The great majority of cuttings require all the leaves that can be *made to act*, not, however, all the leaves that we may choose to leave on them, for here is the error which I want to explain. Physiology, or the law which governs vegetable life, says, that the more leaves you allow on a cutting the sooner it will root; and when we act to the letter of this law, we destroy cuttings by the thousand every season. Now this is very curious; we know the law is perfectly right, and yet if we square our practice with it in every instance, we know, or at least ought to know, that our success cannot be complete. To explain how this is, it will be necessary to understand that in following out implicitly this first law, we often violate another law, which is fully as binding. When a cutting is made according to the first law, that is, with all its leaves untouched, except one or two at the bottom, which must be removed, in order to leave a free space to be inserted in the cutting-pot, we ought to secure it from the influence of the atmosphere, by placing a bell-glass over it to exclude all air from it, except what is confined with it under the glass. Now, we know that thousands of plants will not strike roots, unless the cuttings from them are thus secured from the action of the air; and we know, too, that the more leaves such cuttings have on the faster they will root, just as physiology said. Let us now suppose that we have no bell-glasses to guard such cuttings from the air; the next best substitute is a hand-glass, or in the case of a single pot of cuttings, we can place it inside a larger pot, and if this second pot is deep enough to allow of the top part of the cuttings in the little pot to be an inch or more below the rim, we can place a square of glass over the mouth of the larger pot, and if the rim of the outer pot is so even, that the piece of glass touches it all the way round, we have a contrivance fully as good as a hand-glass, but neither of them so perfect as the bell-glass, as more or less air will necessarily find its way to the cuttings. Still, nine-tenths of all the kinds yet tried will root this way, without depriving them of any of their leaves. With this experience, gardeners have become so bold as to put their cutting-pots in a close hotbed frame at first, and more than one-half of their cuttings root freely enough that way; but some refused to do so, and such, instead of pricking up their ears—or rather their leaves—in this genial, moist, hot air, the greater part of them flagged down on the pots in a day or two. How was this to be accounted for? All their leaves were left on just as physiology had demanded; there was plenty of heat and sufficient moisture; the sun did not reach them; indeed it could not, for to guard against such accidents as a mat being blown off on a sunny day, the outside of the glass was smeared over with lime-paint, made with warm water, soft-soap, and fine lime, so that the sun could not possibly be the cause of these leaves drooping. What could it be then? Such cuttings were never wont to go off that way when we used to have all the stock put under close glasses. Why they did so I shall explain presently, when I tell of how some amateurs, who had an ear for scientific laws, without the necessary knowledge of how best to apply them, had lost whole crops of their every-day cuttings, by implicitly following out the doctrine of "the more leaves the more roots." They had no better contrivance than the front stage of a small greenhouse to root their cuttings, and they had no hand or bell-glasses to put over them; and at that time they did not learn that nice contrivance of placing cutting-pots inside larger ones, and covering them up with a piece of glass, although, now-a-days, every cottager finds that the simplest of all means to root his cuttings on his window-sill;—no, their cuttings were almost in a draught, and not a dozen out of scores of the very commonest kinds could they get to root. All the leaves would flag, and the more water they got to help up their drooping heads the sooner the bottoms of the cuttings damped or rooted off; and when the water was withheld, the leaves soon dried up altogether. In short, the whole thing was a perfect mystery and very disheartening. I have known, and do know at the present moment, some good gardeners in many respects, who, yet, are not very successful propagators, just because they are too much learned in the law of vegetable physiology, just like those amateurs alluded to. To cut off a leaf from a cutting, or to cut any of those leaves left on through the middle, is with them rank heresy; no matter how their cuttings can be accommodated afterwards, leaves they must have in abundance to begin with.

The explanation of all this is indeed very simple and easy to understand. We all know that a leaf under the free action of light and air "pumps up" the sap into itself in order to be digested; and if the supply is cut off from below, as in the case of a detached cutting, the leaf has still the power of "pumping" or drawing to itself the juices of the cutting from any and all parts of it, whether above or below it. But when the light is excluded from the leaf, or partially so, and is, besides, confined from the air by—say a bell-glass, this power is suspended; there is no air to carry off the necessary evaporation from its surface, and there it stands fully distented by the last watering, or the damp air around it; and so it remains till roots are formed through its agency. In a close hotbed, this action of the leaf can only be partially suspended, because more air is allowed access to it. Then, to balance against this partial action, a few of the leaves on a cutting are removed; but the cuttings on the greenhouse stage had both light and air in abundance, and the large volume of leaf surface, with hardly any check on its action, soon "pumped" the body of the cutting quite dry, and so proved its destruction. Whereas, if this surface was much reduced, it would take longer time to dry up the juice of the cutting, and in the meantime roots might have been formed to save it. D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

Giving away Plants or Cuttings: Propagating by Cuttings.—Many of our friends will now be thinking of increasing their stock of their favourite plants, either for their own gratification or to enable them to fulfill promises, and make presents to their friends and acquaintances. I often in these matters bring before my mind's eye a worthy old teacher, who, when describing the Latin synonymes signifying a *gift* or *present*, used to tell us, with something like a spice of sarcasm, that one word implied that selfish kind of *present*, for which the donor expected to be repaid by an equivalent, and something more; while the other word implied a *free gift*, for which no return whatever was expected; and here the good man's eyes used to brighten, his voice to rise, and his full chest to heave with the benevolence of his nature. This latter definition of a *present* is that by which we must be actuated, if we would derive pleasure from giving and imparting satisfaction to the receiver. And this principle must not only be *felt*, but *seen*, otherwise men with large hearts may seem to a stranger to have very little ones, merely because from custom they have contracted a stinginess of manner, even in obliging. Hence, in the case of two individuals equally high-minded and generous, especially in great matters, such a little thing as a plant or cutting may be given by one in such a *manner* as to warm, unite, and attract; and by the other, in such a way as to cool, to distance, and repel. These are matters worth thinking over; for to our own knowledge, kind feelings and friendly rivalries have been engendered by the free open manner of giving a plant, a cutting, or even a rose-bud, that have been the means of constituting sunny neutral spots where those met, and exchanged neighbourly and friendly courtesies, who otherwise would have been too successfully kept asunder by family casteship, political partisanship, and religious sectarianism.

In propagating greenhouse and window plants from cuttings, several preliminary preparations are to be attended to, and several principles kept in mind; most of these have been already referred to, but they will bear recapitulating.

First, then,—*Soil*, according to the nature of that which the plant requires when growing, should be prepared for its propagation. For general purposes, the compost should be of a light sandy nature. For the heath tribe nothing but sandy peat should be used, with a covering of pure sand. Where heath soil is not wanted, a compost consisting of fibry loam, leaf mould free of worms and insects, and rough sand in equal proportions, and, if comeatable, half as much as any of the others of fine charcoal, will make a good standing compost for the generality of plants. This, however, should be passed through several sieves, so as to give several degrees of fineness; the roughest to go over the drainage, the next coarsest over that, a finer to succeed, and a dusting of silver sand over all, which is principally for keeping the cuttings firm, and preventing the air entering to their base. We strike great quantities of things at this season, where altogether there is not two inches of soil, and yet we use these gradations, as to its fineness and texture, and with the best results. The matter was previously referred to in the autumn.

2nd. *Pots*. These should be thoroughly clean, and half filled with drainage. In particular cases, where you are more than ordinarily anxious to insure success, the inverting of a three-inch pot into a five or six-inch one—placing a potsherd upon the hole in the bottom of the small inverted pot, and putting some drainage round the sides between the pots, before filling with the compost—is a very good plan, especially where it is both proper and possible to plunge the pot in a nice bottom-heat: first, because roots are generally soonest emitted when the base of the cutting comes in contact with a hard porous substance, owing to the resistance given to the mere extension of the *cambium* matter, or secretion from which the rootlets spring at the base, and the consequent excitement to vital energy thus produced; and secondly, because the heat will rise in the inverted pot like a chimney when the pot is placed in a hotbed; and thus the ends and sides of the cuttings placed against it will be excited into extension, even when the top of the cutting is kept comparatively cool—evolving, thus, a principle of great importance in our treatment of plants, though it may not altogether agree with the *orthodox* views of some physiologists. Those who can get as many pots as they require for such purposes may consider themselves fortunate; many are glad if they can get shallow boxes, pans, or even common semi-circular drain-tiles.

3rd. *Preparing a small hotbed for such purposes, where practicable.*—Here I cannot do better than refer to the directions lately given by Messrs. Errington and Beaton, as the more carefully such work is done, the less likely will it be that you will be disappointed. Being rather scarce of fermenting material, I do not reduce it much by *sweetening* it; but such a system would not do for a young beginner. It is principally owing to these mild hotbeds that we can propagate many things in spring in a third of the time we could strike them in the autumn; because, at the latter period, anything like a hotbed is often injurious; and so it would be frequently in the spring, unless the plants were previously prepared for it.

4th. *This preparation* consists in the exciting a fresh growth, by an increase of the temperature, before the cuttings are removed from the plants. Some plants are so accommodating that even now cuttings taken from a cool house, and transferred at once to a hotbed, succeed perfectly; but in all delicate cases, and especially with the finer hard-wooded plants, the experiment is often attended with complete or partial failure. In such cases it is better to keep the cuttings *close* but *cool*, waiting patiently until a *callus* is formed at their base, when, if you are anxious to hurry them on, they may receive a little bottom-heat with advantage.

In noticing the *Kentish Hero*, *Calceolaria*, I mentioned that it was rather difficult to propagate. An able correspondent gave us his account of propagating it in a very cool place in the autumn, and Mr. Beaton recommended spring. In the end of summer we struck some in about ten weeks, with failures; in September and October others were rooted in about seven weeks, with failures; in November and December in four weeks, a slight bottom-heat, and kept close, no failures; January and February, cuttings brought from a temperature of 50°, set in a hotbed of 65°, with a little air left in, struck in three weeks, not one failure.

Though plants, in general, are more easily propagated *now* than in the autumn, we must not forget that we shall propagate poorly now if we have not plants kept over since the autumn to propagate from. In *choosing* cuttings, select, as much as possible, nice stubby, fresh-grown shoots, instead of those that are older, or more weak and lanky. Where no hotbed can be obtained, propagating need not commence either until the end of the month or the middle of March.

Considerable care must be exercised in *shading*, &c. At a later period still, many plants may be successfully propagated in a shady place out of doors, such as fuchsias, calceolarias, geraniums, &c. The same result may often be obtained by different means, and yet the principle be identical in the different circumstances. The first cuttings I ever struck were reared in a cottage window; they were set on the inside sill during the evening, and remained there until breakfast-time, when they were unceremoniously set upon the floor during the day; and they got on quite as well as those that were blessed with a paraphernalia of hotbeds, striking bell-glasses, &c.

There are just one or two *principles* to be attended to in striking cuttings taken from the parent plant in a growing state, to which we shall merely advert; the full elucidation of these would occupy of themselves an article or two. *First:* Prevent the juices of the cutting from being evaporated, and the too rapid decomposition of carbonic acid gas from exposure to heat, air, and light. Hence the importance in all cases, but especially in the case of all hard-wooded plants, of a most close atmosphere, covering with glasses or sashes, and shading from the sun. Hence, too, the question as to the number of leaves to be left on a cutting. The answer lies in a nut-shell. The number left should be in proportion to the powers you possess for keeping them fresh and green, as then the greater the surface of foliage, the sooner and more freely will roots be protruded. But, as a general rule, it is better to curtail somewhat the number of leaves, and even their size when large, because, if left on the bottom of the cutting, they frequently occasion ruin from damping, and more trouble is required to prevent them flagging. The extra trouble being scarcely repaid by the beneficial results. *Secondly:* Beware of shading over much, or there will be extention of the cuttings upwards, but not downwards The more sun they can stand, the sooner they will strike roots. Hence, in spring and autumn we scarcely ever shade. By placing them in pits or frames, at an angle of 75° or so, and at 18 inches or 2 feet from the glass, the rays of light are diffused before they reach them, while a slow decomposition of carbonic acid, and a slow assimilation of fresh matter to the cutting, is constantly going on. *Here rests the grand secret of cutting-striking*, worth thousands of directions about cleaning and wiping bell-glasses, &c. *Thirdly:* When the cuttings are inserted and placed in the propagation quarters, *water* so as to make firm the soil about them; give no more waterings, unless dustings over the foliage with the syringe, until the soil begins to be dry. *Fourthly:* When struck, inure them to full exposure to sun and air, before you pot or plant them. R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

PLANTS REQUIRING PECULIAR TREATMENT.

Bromheadia Palustris.—This plant. the only one of the genus, is named in honour of Sir Edward Bromhead, Bart., and the second name denotes that it grows naturally in marshy ground. It was found in Sumatra, and requires the heat of the Indian-house. The flowers, delicate and beautiful, are produced upon stems from two to three feet high. These stems have something of a reedy appearance. The flowers appear upon a grass-like stem, opening one at a time, and only lasting in perfect beauty one day. The sepals and petals are white, delicately tinted with rose; the labellum, or lip, is pale yellow, tipped with violet and covered with beautiful purplish down. The whole flower is like that of a *Dendrobium nobile*, but more delicate in the touchings of colour. The plant is worth cultivating. The peculiar treatment it requires is as follows:—Pot it in a rather large pot, in a compost of loam, peat, and leaf mould; then set the pot in a shallow pan of water, and keep this pan constantly full. This treatment is different to nearly any other orchid, because in its native solitudes it grows and thrives in wet marshes.

Cœlogyne.—This is a rather large family of orchids, most of which have beautiful flowers. Under the head of "peculiar treatment," we have to do only with three or four species. *C. Gardneriana* is a fine species, with large dark-green pseudo-bulbs, at the top of which are generally a pair of large lanceolate leaves. These mostly fall off in the season of rest. About the end of February a large bud may be observed swelling at the base of the last-formed pseudo-bulb; it is then time to pot it. Now, to understand how and with what to do this rightly, we must know the peculiar situation in which it is found.

To return to the plant which induced us to make these remarks, *Cœlogyne Gardneriana:* it was found by Mr. Gibson, collector for the Duke of Devonshire, growing on the Khoosees hills in India, on trees and rocks in moist shady woods—being in the greatest luxuriance where the spray of a waterfall fell upon it, keeping it constantly moist. There, amongst small sticks, rotting leaves or moss, it flourished in the greatest beauty. This is a very similar situation to the one we described as the native haunt of *Huntleya violacea*, on the banks of the river Essequibo. Now, as these two plants are found in similar situations, though in different quarters of the world, the same treatment will suit them both. (See page 199, of this volume). *C. Gardneriana* is a lovely species. The flowers make their appearance at the bottom of the pseudo-bulb formed the previous season. If this is strong, the flower stem will often produce as many as six flowers. They appear generally in February, and the young shoots succeed the flowers out of the same sheath, growing rapidly, and perfecting the bulbs early in summer. Frequently they produce a second set of flowers the same year, and, of course, a second set of pseudo-bulbs, but this is not desirable, as the last made ones are often rendered weak, and unable to produce such strong shoots and fine flowers as the spring-made bulbs. It is prudent, therefore, to be content with one set in a season. We may just mention, that the flowers are from two to three inches across, of a beautiful clear white, with a yellow spot in the centre of the labellum. Pot them in a mixture of rough fibrous peat, decaying leaves about half rotten, and sand; drain them well, and place them in the coolest part of the Indian-house. Keep them constantly moist, but most so when they are growing freely. The same treatment will suit the following species:—*C. plantaginea*, *C. barbata*, *C. elata*, and *C. cristata*. The last is a most beautiful spcies. *C. fuliginosa*, *C. speciosa*, *C. ochracea*, *C. Cumingii*, do best hung up in baskets, and do not require so much watering over head, excepting when growing freely.

C. Wallichiana, *C. præcox, and C. maculata*, form a distinct secton of this interesting genus, and require a different treatment. They are called in the East "The Indian crocus," because they flower in spring, and garnish the meadows and hedge-banks in that luxuriant country. They form greenish bulbs just on the surface. In our stoves they require to be potted in a mixture of loam, peat, and leaf mould, with a small portion of clean sand. We find they do best placed on a shelf, near the glass. When they first begin to grow give but little water, or there is danger of damping off the young incipient shoots. Like *C. Gardneriana*, the flowers appear before the leaves, and are exceedingly beautiful. The leaves make their appearance after the flowers decay, and form close to the soil the new bulb; the old ones shrivelling up and perishing the same season. As the leaves increase in size give more water; and frequently wash the leaves with a leather brush, to destroy the red-spider, as this insect is very apt to infect them. Keep the leaves healthy, and get them as large as possible, as upon them depends the size to which the bulbs may attain. These plants are difficult to increase, on account of the old bulbs dying off as soon as the young ones are formed. Sometimes, however, if the bulbs are strong, they send up a pair of extra leaves, and these form small bulbs, which may be detached at the season of potting, and will soon form separate fine plants We intend soon to write on the propagation of orchids in a separate chapter; but as these three species of Cœlogyne are so different in their mode of increase to any other, we have described that mode here in order that the cultivator may now, as this is the time for potting them, divide or separate his small bulbs off at the same time. These plants do not require large pots. Such as are strong may be put into pots five inches in diameter, and the smaller bulbs in pots proportioned to their size. We have had the bulbs sometimes as small as garden peas, and to save room, have put such three or four together into one pot for one year; potting them separately into middling-sized pots (that is in pots three inches in diameter) the season following. Attention to these apparently trivial points of culture denotes a mind determined to succeed, and we cannot help pressing upon orchid growers to attend closely and constantly upon these, as it were, the turning points of culture. A general way of potting, a general mode of watering, using only one material, giving one equal temperature, and ventilating all a little, would not answer. If it would, orchid-growing would, indeed, be as easy as growing a flat of cabbages; but these plants—coming as they do from various parts of the world, and inhabiting different localities—require, when gathered together into one house, or at most two houses, a variety of situations and treatment.

There are yet several species on which we shall have to observe, as they require a different mode of treatment to the general one.

FLORISTS' FLOWERS.

Dahlia Propagation.—Some of our florist friends, eager to increase their stock of choice dahlias, will, by this time, have set them to work—that is, to grow. We do not recommend starting them so early. "More haste less speed," is a proverb equally applicable to dahlia growing as to any other pursuit in life. We conceive that now is quite early enough to start these gorgeous autumnal flowers. The best place to start them in is a pit, or frame, heated either with dung-litter, well mellowed by turning it over frequently previously, and putting it then into the pit when the fierce heat is moderated; or the pit may be filled with tanners' spent bark, and the roots laid upon it. Upon the dung lay a covering of ashes, or sand, previously to putting in the roots. In this warm, moist heat the roots will soon send forth shoots and new roots. As soon as the shoots are three or four inches long take them off, and put them into small pots half filled with earth, and then filled up with fine white sand. Give them some water to settle the sand; the cuttings then may be put in, and will soon take root.

The great art in the management of dahlia cuttings after they are struck, is to give them just such a quantity of air as will enable them to make dwarf stout plants, without actually starving. Dahlia cuttings should never be allowed to stop so long in the pots as to fill them with roots in a dense mass. It is the greatest absurdity to expect plants that have been cramped in their early youth to make strong healthy fellows afterwards. By no means, then, nurse your young dahlias too much. This observation applies to those that are growing now, or have been growing for some time, as well as to those that are yet to be propagated. Continue to secure them from frost, and no more: too much heat or stimulus at this early period is very injurious.—T. Appleby.

THE KITCHEN-GARDEN.

Asparagus.—The last planting for forcing may now be placed on a slight hotbed, and be hooped and matted, or covered over with some kind of light protection. The beds now in full cut may be beneficially assisted by liberal soakings of tepid liquid-manure water, and a small portion of salt dissolved in it. Air should be liberally given by day, to produce the shoots strong, and of a good colour, and the frames should be shut up early of an afternoon.

Asparagus Culture in the Open Ground.—Old beds, if not already manured, should be attended to without delay; and the manure be forked carefully in. Sea-weed is an excellent article for top-dressing, when attainable for this purpose. The ground intended for a new plantation should be well manured and trenched, continually forking and stirring the earth on all suitable occasions. The seed of asparagus may also now be sown on well prepared and pulverized soil, one foot apart. It should be sown thinly in drills, in order to obtain good sturdy plants for the next season's planting.

Borecole, &c.—Choose for seed, plants of the best curled and short-jointed sorts; never select those that are coarse, long-legged, or long-jointed. Sow at once the first sowing of seed for obtaining early plants on a well pulverized spot of soil, as well as a small sowing of the dwarf curled *Savoys* and *Kohl-Rabi*.

Routine Work.—Clear the late *celery* of decayed leaves and rubbish, and apply its final earthing. Sow a little seed in pans, or on a slight hotbed, for early spring use. Sow also *chervil*, *corn salad*, *American cress*, the *common cress*, and *mustard*. Finish bleaching the last crop of *endive*, and well attend to the early *lettuce plants;* keeping them clear of dead leaves and other rubbish. Keep the earth's surface well stirred, and have dry dust applied about their stems to prevent their cankering. Sow *leeks* and a small sowing of *onions* for early use; covering them with a little mulch, or some slight protection, until they are up. An early variety of *turnip* should be also now sown on a slight hotbed in drills.

Sea-kale.—New plantations should now be made on well prepared soil; and some salt, of which the sea-kale is particularly fond, should be applied. Supposing the sea-kale ground to have been well trenched and ridged, and the ridges to have been forked over several times, it must, as a matter of course at this season, be in a very well pulverized and healthy condition. The salt may be sown over the surface of the soil broadcast, pretty liberally, with great advantage, previously to its being forked down level for planting, in order to get the salt well incorporated with the soil. We apply it at the rate of about four pounds to the rod, pole, or land-yard; and in the course of the summer season, we apply liquid-manure pretty liberally, with salt always added to it

We plant our rows of sea-kale three feet apart, and the plants singly two feet apart in the rows, so that in one summer's growth, with the foregoing management, we find the plants get very strong, and fit for producing fine healthy heads of blanched kale throughout the succeeding winter, either taken up or forced on the ground. Sea-kale, which has not been already covered for this season's production, should at once be attended to, or the shoots will be produced of a blue colour, and a bitter taste. Charred saw-dust, old tan, leaf-mould, light soil, or fine cinder-ashes, are all very suitable for blanching it at this season, without the addition of fermenting materials.

Salt as Manure.—Slight applications of salt, that is to say, a little and often, may be given by sowing broadcast over the surface of the soil, at most times with great advantage. We do not approve of applications on too liberal a scale to *any* crop at *any* season; but we are advocates for applying it lightly over the surface of the soil for almost all and every kind of crop, particularly at this season of the year, as the moisture of the soil and showers are sure very soon to dissolve it, and a box or bin of salt should always be kept near the manure-catching pit, in order to give its accumulations liberal sprinklings.

Early Peas should have earth drawn well up to them on the cold side, and short boughs placed to afford them protection; the general crop of late peas should now be sown in full crop. A row of round spinach may be sown between them.

Lettuce.—Make another sowing of the Bath cos and Victoria cabbage lettuce.

Potato Ground which has been some time planted, and the surface-soil allowed to remain in a rough state, would now be improved by first sowing some salt over it, and then harrowing or hand-scarifying it.

Framing.—Continue to collect together fermenting materials, which should be well turned and worked, to get the mass in a good uniform condition; keep the linings of early *cucumbers* and *melons* well-topped-up and protected, so as to maintain one regular genial heat. Sow in succession *cucumbers, melons, capsicums, chillies*, a little *sweet basil*, and *sweet marjoram*.

Mushroom Beds should be looked to in the outsheds, to see that they are well covered up, to maintain a genial warmth; and should a little water be required, let it be tepid, and given from a very fine-rosed water-pot or syringe. After watering, add a little fresh, dry, refuse hay, previously to putting on the old covering again. Mushroom beds should be uncovered with the greatest care, so as not to displace or pull the mushrooms off with the covering. Mushrooms are apt to come in large clusters; and, if great care is not taken in removing those that are fit for use, you will injure those that you wish to remain to become larger. In gathering, remove them, root and all, by a gentle twist, and the places where taken from fill up with a little fresh earth, and press it down with the back of the hand.

Cauliflowers attend to, planting out, and earth-stirring among the hand-glass crops which were planted out in the autumn. Let them have all the open air possible in favourable weather, by taking the coverings entirely off.

Cabbages plant out freely in good well-manured soil, to succeed those which were planted out in the autumn; and use the hoe freely, on dry days, among the autumn-planted crops.

Brocoli Crops look over every frosty-looking evening, to see if there are a few heads ready for cutting, or the leaves to be turned in over the head as a protection.

Mint.—If any have neglected their mint-forcing, let them take a few roots and place in pots or pans; water them well, and place them in their cucumber or other beds where there is bottom-heat. This forcing is necessary wherever early green spear-mint is required. James Barnes & W.

MISCELLANEOUS INFORMATION.

OUR VILLAGE WALKS.

(No. 20.)

I am writing in the last week of January, yet spring seems fairly to have opened upon the ever-beautiful earth; for I have seen the first squirrel, heard the first lark, and have gathered a twig of sallow with the first silky buds shining like pearls on the dark stem. Shall we ever weary of welcoming the gladsome spring, with her innumerable beauties, although, year after year, she dawns upon us with the same glittering freshness, and presents the same features to the eye and mind?

We have had abundant proof that the graceful squirrels have passed their winter cheerily, for the ground has been strewed with the tips of the spruce fir, which they have thrown away after their wasteful meals; but I have not seen them frisking among the boughs for many weeks. Three days ago, I was surprised at the sight of one scudding over the beds of dead leaves that lie thickly on the ground among the woods, and springing up an oak. The colour was so much like that of the dead leaves, that I should have fancied it a large leaf dancing before the gust, as I have so often seen them do, but for the feathery tail, which gives so much grace to their light movements. The little creature seemed full of glee; it sprang coquettishly up the tree, keeping cautiously on the opposite side, but peeping occasionally at me as it ascended, and seemed to luxuriate in the returning mildness that permitted it once again to enjoy its native freedom and buoyant spirits. What a gay, happy looking creature, is a squirrel! how light and elegant are its movements, as it bounds across the lawn, or springs from tree to tree! They shoot along the delicate sprays of the larch, scarcely appearing to touch them, or to agitate the boughs, except when a shower has fallen, and then the glittering drops fall like rain, marking the rapid course and agile leaps of the lively animal. We are almost tempted to envy their life and lightheartedness, as we watch them. We cannot help, sometimes, a shade of sadness passing for one instant through our minds, when we see the joyous animation, the freedom from care, of a thoughtless squirrel, so different from the sober realities, and the withering anxieties of man's troubled life! Yet, let us learn another lesson among the whispering, nay, the vocal, woods—vocal with more than music. They tell us that "man disquieteth himself in vain," that the loving and bountiful hand that feeds and fosters the beasts that perish, will as surely supply every want of those whom "he so loved," as to give for their ransom his own beloved Son; and, that if we would only "taste, and see how gracious the Lord is," no bounding squirrel could spring so lightly, so rapturously as our hearts! No summer breeze could breathe such melody as we should utter then!

It always creates regret when we see such active creatures confined in cages; and we are obliged to take comfort in reflecting that, as they have no minds, they are far less susceptible of captivity than we imagine. Still, I cannot bear to see them shut up from air, and the delicious enjoyment of their own bright, beautiful land, and joyous companions. I remember my sister once bringing up a young one that had been taken from the nest, and it throve, and seemed contented and happy nestling itself at night in a handful of moss, which it picked out in the most careful way, till every little blade was separated, and it seemed as if curled up in a bed of gauze. The cage was placed one morning near a window, and my sister was startled by hearing the squirrel utter a piercing, agonizing cry. On hastening to ascertain the cause, she saw the poor little creature gazing intently on one of its own species, frisking among the boughs of a tree close to the window where it dwelt in solitude. Who could resist that piteous appeal?

It was the pet of an absent son; but in less than two minutes it was dancing with glee among those very boughs the happiest of its kind. I have, however, been *almost* reconciled to the captivity of one of these pretty creatures. It is in the possession of one of my own near relatives, and enjoys a comparatively happy life. It was full-grown when caught in his garden; and its extreme gentleness proved that it had been reared in confinement, and had escaped from its cage. Its tameness and docility are remarkable; it runs merrily about the room, plays with the children, and seems to have no disposition—which squirrels generally have—to bite. It will suffer itself to be stroked and caressed with the utmost good temper; and when wearied with play, returns contentedly to its cage, and composes itself to sleep. It is beautiful to see a squirrel feeding: its delicately-formed fore-feet, so nearly like human hands, its erect attitude, plume-like tail, and the dexterity with which it bores through the shell of a nut, make it quite an interesting object. My cousin's squirrel delights in a little basket, where its nuts are placed: into this it hastens; and as the basket is just large enough to hold it, it is one of the prettiest sights possible to see it sitting there, nibbling away with perfect *non-chalance*.

We once had a beautiful Angola cat bringing up a kitten that could only just see. Two or three very young squirrels were brought to us at the time, which would otherwise have perished; and my father immediately resolved to try if the cat would nourish them. Although so different in colour and shape to her own white, silky kitten, the cat received them very kindly, and they flourished admirably under her care, quitting her only when they ceased to require her support.

Squirrels are such destructive animals in plantations, that they are obliged to be destroyed. Where they abound they do incalculable mischief, barking the trees, and thus destroying them. The larch suffer especially; and we were once hurried out to look at a plantation of Scotch firs that had been struck by lightning, in a storm, a few nights before. We found the trees stripped of their bark in a singular manner, but agreed that their scathed appearance proved how awfully near to us the electric fluid had fallen. The clearer comprehension of a gentleman, a few days after, discovered the real destroyers: the whole affair was the work of squirrels.

We are already beginning to enjoy our favourite walks once more. There is much wet everywhere. The copses are in a very spongy state; but it is interesting to watch the clearing out of the drains, and to see the imprisoned streams running freely away. The little woodland paths, wet as they are, lead us through scenes of bursting nature, and we hear such lively sounds on every hand as spring alone affords. We can mark the sprouting primroses already; the little delicate buds rising thickly from the soft green leaves; and plants of every kind are now beginning to bestir themselves to deck the earth with beauty. The mezereon is full of rich, swelling buds, which will, in a few days, wreathe its light branches with bloom like that of the almond tree; and carry us, in thought, to that Scriptural land now glowing with its flowers, which was once the glory of all lands, and will again, ere long, be the joy of the whole earth.

Let us, as we hail the returing spring, remember, that in a few fleeting months all will again fade and disappear; we shall again stumble over the hard, frozen ground, and shiver beneath the cutting wintry wind; all the beauty that is now awakening will have perished. But the mercies and the "compassions" of the Lord "fail not:" "they are new *every morning*." How prone are we to see with our bodily eyes only—to mark the blessings that *they* discern—while our hearts lie cold and unconcerned within, and our spiritual eyes are blinded!

HEATING HOT-HOUSE BOILERS.

No. I.

Thinking that the heating apparatus of hot-houses and other structures will of course form part of your plan, in directing the amateur how to act, when he puts up anything new in the way, I am induced to offer a few remarks on this very important subject, as, notwithstanding all that has been written and said on the matter, many very imperfect, or rather improper, modes are still adopted—I mean that many new boilers, pipes, tanks, &c., are daily put in, ill calculated for the purpose they are intended for. And when it happens, which it very often does, that the costly machinery does not work well, the amateur naturally becomes disgusted with the thing altogether, and abandons fruit, or plant-forcing, as an expensive job; I, therefore, make no apology for drawing your attention to the following particulars, being the result of considerable practical and, I might add, personal experience.

Of the various mechanical inventions of the present century, perhaps none have shewn so little improvement on the original as the method of heating by hot water; so little, indeed, has been the improvement, that if I were consulted on the most useful plan to heat a vinery, or any similar house, I should certainly advise the same method by which the very first houses that ever I saw so heated were constructed, in preference to many of those whimsical novelties so fashionable now-a-days. It is a great pity that the old-fashioned saddle-backed boiler was ever superseded, as it did its work much better than any of those gew-gaw contrivances, with all their appurtenances, so often mis-called boilers, whose intricacies in some cases would almost puzzle the inventor. At all events, they have often puzzled the poor stoker, and many times have cost him hours of sleep, as well as the painful anxiety that may have been evinced by his superior, from the liability they have to become deranged.

It is well known, that the great variety of boilers of every whimsical make, which we hear of every day, all owe their existence to an attempt to save fuel; certainly all other ends accomplished too, that is a very great recommendation, yet that may be bought too dear, as I know to my cost, in several instances, besides in others in which the consumption of fuel was even greater than a more simple plan, so that it is necessary for the amateur to be on his guard, as we all know the more simple a thing is the cheaper it generally is, and taking the matter in a pound-shilling-and-pence point of view, the difference in the cost would, I am sure, furnish the additional quantity of fuel required for years, presuming (which I think would not be the case), that the registered boiler, with its long name, required something less.

We all know that the duties of stoker is, in most cases, performed by the most humble individual in the establishment. Now a poor unlettered boy may not be able to lecture on the radiating or expansive powers of heat, and a great deal of other pedantry we hear so much about, but he may know perfectly well how to kindle a fire, coax it to burn, and by daily practice can regulate the quantity of fuel he puts on, so as to produce a certain amount of heat. These duties, we premise, are all that can be expected of him; and in performing of which, I very much believe, he would excel our learned Professor himself;

but alas! the learned dignitary has put a stumbling block in his way: instead of the simple, old-fashioned square, or saddle-backed boiler, with its capacious fire-box below, which, like a begging-bag, would hold little or much, we have saddled upon us a mis-shaped sort of a thing, which on its arrival at our premises attracts no little attention, as to what it is ever intended to be. Presently, a polite gentleman, or his man-of-all-work, follows after it, extolling its wonderful qualities for the required purposes; and often, in all probability, the greater part of the back-wall of your house is pulled down, the interior disarranged, and a hole dug deep, and large enough for the cellar of a prince, and perhaps water rushes in, to get rid of which your grounds have to be cut, and no end of trouble endured. But we will suppose this curiosity put in its place, pipes attached, fire applied, and you are invited to inspect the apparatus, and feel the congenial heat it imparts; well, all this done, the tradesman takes his departure, with an additional testimonial to his list of patrons, to repeat the same thing at another place. Now, let us follow the matter out: we said the house was well heated at the trial, and so it was—one or other of the attendant workmen stirring the fire every few minutes; well, when Mr. Leather-apron leaves the premises, the fire may not then be wanted for some little time again; something may want putting to rights in the inside of the house, and when our poor stoker-boy gets directions to put the fire on, he attends to it with pleasure—the thing is new; he has not to stoop and shovel in coal, but he has to put some coke into a funny-looking throat at the top, just like putting letters into the box of a village post-office. Well, this certainly is nice; looks well at it, and goes away, returning again by-and-by he finds the fire is out; to kindle it again, he quickly applies himself, charitably thinking it must be the damp (the fire not having been lately on) that makes it so unwilling to burn, but hopes all will be right shortly. How often he may repeat his visits I need not say, but at length he gets it to burn, and seemingly all is right at bed-time, and the fire on then. Well, he puts on so much coke as he can cram into the funny little fire, filling the hopper as well, as the bricklayer that set the boiler told him to do, as a sort of night food for this extraordinary progeny; well, in the morning he hastens to it, finds to his consternation, that the fuel he put on is there just as he left it; runs into the hot-house to look at the thermometer, which he finds 10° below what it ever ought to be, and back again to the boiler, with all the maledictions he can think of; at the same time taxing his ingenuity as to the quickest way to get the fire up before his master enters that house, and trusting he will be able to manage it better the next night. Well, the next night he takes care and forces the fire well before bed-time; and at the final covering up, puts no more coke on than just what the fire-box part will contain, and in the morning is somewhat consoled to find it had burnt away, the fire out, and the house not so very much under the mark as the preceding night. Well, this is repeated once or twice, when lo! a clear star-light night betokens frost, and the boy has orders from his master to put a little more than usual on all the fires, consequently again tries filling the hopper, and again with the same result.

Now, this is not an over-drawn picture; I have had more experience in the capacity of stoker than most of people, certainly more than those who write about heating, and have had boilers of various makes, —conical, cylindrical, or spiral, all with hopper-feeding appendages, but I have never yet seen one that was calculated to work well in a general way: the hopper-hole was too small, large lumps of coke are apt to choke it up, and some of the fire-box partitions are also so small as not to hold anything like the quantity necessary to put on before leaving it for the night; and when there is no certainty of the fuel in the hopper finding its way into the fire, even with the greatest of care and attentive practice, it certainly speaks very forcibly that such an appurtenance ought to be dispensed with; and I may inform those advocates of novelties, while quarrelling over their supposed infringements of patents, that I have seen more than one of their coffee-pot-looking patents, after fruitless attempts to make it answer, pulled down, laid on its side, something like that useful utensil, and some alteration of course in the insertion of the pipes, and a capacious fire-box placed below it, and then it served very well; the whims of the inventor, in these cases, being buried in the brick-work, to the great satisfaction of the gardener attending it. Now, I do not draw my conclusions from the failure of one, two, or three cases; I have had several under my charge, and have also had a good share of the humble calling of attending to them, without which I think no man is entitled to give an opinion of their merits; but having drawn this letter to a greater length than I intended, I must leave the conclusion thereof until my next, when I will give some particulars of the arrangements of pipes, and other matters.—S. N. V.

TO CORRESPONDENTS.

⁂ We request that no one will write to the departmental writers of The Cottage Gardener. It gives them unjustifiable trouble and expense; and we also request our coadjutors *under no circumstances* to reply to such private communications.

Mis-carriage in Hens (*A New Subscriber*).—This case is somewhat singular. Our correspondent says:—"I have three hen Bantams and one cock; one of the hens commenced laying, but after laying three eggs in three weeks, suddenly took to laying soft eggs, and yolks of eggs without even the skin: this happened day and night till she died. Another commenced laying to-day, and after laying one proper egg, immediately laid a soft egg, and she seems in a fair way of following the first one. Can you tell me the reason of this, and the cure (if any)? They have a night-house, a stone shed, an ample walk, plenty of old mortar, chalk, &c.; are fed with barley, oats, barley-meal, raw meat, water-cresses, potate, and turnip, and have plenty of fresh pump-water every day." This we take to be a clear case of over-excitement. Give the hens a teaspoonful of castor oil; do not give them any animal food, nor anything else but boiled vegetables and scalded barley-meal. You feed your poultry too highly; give them not only less stimulating food, but less food altogether.

Dutch Every-day Layers (*Rev. F. W. Pye*).—Our correspondent wishes to know where he can obtain a pair of these, and the price. Much obliged; we have now plenty of seed.

Ivy Torn from a House (*Carig Cathol*).—On no account would we destroy the old ivy. No doubt part of the long shoots have snapped, but let them be cut below the fracture, and the bottoms will soon furnish strong suckers to supply the place of those broken. Let every shoot be disentangled, by cutting off the smaller branches which interlace, and be fastened to the wall with strong hooks. We have seen large pieces of torn-off ivy saved by such means. If you could save one-third of the old wood this way, and at regular distances, and cut down the rest to near the surface of the ground, your house will be furnished again in less than half the time it would take to do so from young plants or seeds. Even if the whole of the old stems were to be cut down to the ground, we would rather trust to the old roots for a fresh supply than to any other method.

Cochin-China Fowls (*E. Muggridge*).—In answer to your query at page 246, Mr. Martin Doyle says:—"The average height of the finest specimens of Cochin-China cocks is at least six or seven and twenty inches. They have, mostly, a rudimentary, and frequently a complete fifth extra toe, which is hereditary, and so adherent to the breed as to induce a suspicion of their close relationship to the Dorkings. The legs are of a pale flesh colour.

Insects (*Tyro, Plumstead*).—The insect in the small box is not a Wireworm, but one of the *Snake millipedes* (see vol. 2, page 139). The large white grub is the larvæ of the common Cockchafer.

Hyacinth Offsets (*W. X.*).—Whether in pots or in water-glasses, we never remove these from the parent bulbs. Put as much *salt* to your earth intended for manure as will give the land, to which it is applied, a dressing of salt at the rate of ten or twelve bushels to the acre.

Hops (*Dr. Rooke*).—These do not come within our province; being strictly a farming produce. They are raised from seed, which can be obtained of the London seedsmen. A deep light soil suits them best. The poles should be ten or twelve feet above the surface of the ground. *Reid's syringe* is the best for vinery and greenhouse use.

Unpruned Peaches, Apricots, and Plums (*W. W.*).—By all means pass the pruning-knife over your trees. As they were neglected last summer, and growing freely, they must be somewhat crowded. Thin out judiciously, in order to admit light; as for shortening back, that depends upon the character of the wood in respect of ripeness. Shortening must also occasionally be practised, in order to cause the tree to fill up any parts deficient. The gross shoots had better be reduced a little, and some white lead put on thin upon the cut ends to keep air and moisture out. You will see an article on pruning in this number. Make up your *hotbed for cuttings* immediately.

Pear Pruning (*A. C.*).—Do not shorten the short-jointed shoots tied down in summer. If none of this proper character occurs, but all are rank wood, tie a moderate portion down, and root-prune severely. The apple may be managed this way when deficient of natural spurs.

Apricot, Pears, and Strawberries Unfruitful (*Victim*).—Our correspondent's *apricot* grows above the wall, and is full of strong wood, without producing blossom; his *pears*, also against a wall, blossom abundantly, but produce little fruit; and his *British Queen strawberries* are deformed by hard green centres; and his *Espalier apple-trees* have a great many long shoots among them. You must shorten back your shoots above the wall, and root-prune immediately; all other pruning without this will fail. You have made your soil too good. Your *pears* are protected when in blossom; they ought to do better. We would try root-pruning. We have had other and similar complaints about the *British Queen strawberry*, but we cannot say, without seeing a case, what it may be. Do you water sufficiently when swelling off? Thin out some of the long *apple shoots* entirely; they will rob the true bearing shoots.

Salt to Greenhouse Bulbs (*T. R.*).—How could we possibly say how much salt you may put into the water for these, without knowing the species? There are very few that could be benefited by the application. You can only get rid of the *caterpillars in your rockets* by carefully hand-picking and searching for the eggs. You will find a description of the moth producing them at page 21 of our second volume.

Hemerocallis Japonica (*Ibid*).—This is quite hardy, and ought to flower freely in any soil. Supply it abundantly with water in the summer. *Charcoal* is never used by us for bulb-pots; but it does no harm, and makes excellent drainage.

Vines and Greenhouse Plants (*L. R. L.*).—The shade of vines in a greenhouse will certainly injure plants. Keep them on a front shelf where there is no shade. *Fuchsias* will stand more shade than most plants.

Creepers in Vinery (*Ibid*).—If grapes are a desideratum with you, no kind of creeper should be allowed to interfere with the vines on the rafters.

Cyclamen Seed (*Ibid*).—This will grow very well now from seed. Sow them in a light compost, place them in a cucumber-bed till they vegetate, then remove them to a cooler place.

Apple-tree Cuttings (*Ibid*).—These may be struck either in April or early in the autumn; and shoots of the previous year, with a heel of the elder wood attached, strike the most readily. *Soot*, after being soaked in water, is useful upon heavy soil; but it has been deprived of its ammonia, and therefore is not so valuable as a manure. *Poultry* can be over-fed. See an answer to another correspondent. Keeping them shut up in a stall, or shed, is quite enough to make them dull. We have painted over *walls with gas tar*, and the effect is excellent. It destroys vermin, and certainly advances the trees against the walls.

Names of Apples S. D., *Ilford*).—As far as we can make out from two such bruised specimens, we think your variety is the *Court-pendu Plat*; an apple originally from France, but sometimes called Garnon's apple, because cultivated at Garnons, the seat of Sir J. Cottrell, near Hereford. (*W. P. L.*).—We think your small apples are the *Boston Russet*.

Mammoth Brocoli (*M. T. Mould*).—A correspondent will be obliged by your sending him a little seed, and of the Ohio Squash, to "W. G. Cherry, Esq., Buckland, Leominster."

Earth Nut.—The same correspondent wishes to know where he can obtain some tubers of this.

Wire worm (*A Young Beginner*).—A ton of gas lime, mixed with five loads of earth six weeks since, will not destroy the wire-worm, nor yet spoil the garden, as your landlord fears. Salt and soot mixed with the soil for a foot square, round where you purpose to insert each potato-set (whole), will be more likely to keep the wire-worms from them. The *Hooped-peticoat Narcissus* requires no particular culture. The bulbs only have to be buried about two inches below the surface of the border. *Abutilon Striatum* is a very pretty flower. See all about it page 137 of our last volume. We do not know which you mean by *Semper florens roses*; perhaps you mean either the *Perpetuals* or the *Evergreens* (Sempervirens).

Fowls with Diseased Eyes (*Rem*).—Our correspondent says, "Lumps come near the eyes in some, like a white swelling, and in others red. It seems to be a hard substance, like bone." We never met with such a case before, and, if the fowls are in good health, should leave the lumps untouched. If these increase in size inconveniently, we should rub them with lunar-caustic.

Royal Muscadine Grape (*W. H. G.*).—We have no cuttings of this. It is sometimes called the *White Chasselas*, but it is very different from the *White Muscadine* of Langley, Speechley, and others. Our correspondent would gladly send postage stamps to any one who can let him have cuttings.

Name of Salvia (*E. B. W.*).—If either of the two you name, it is *Salvia fulgens*; but no one, merely from a flattened blossom, can tell whether it is not *S. formosa*. *Tree mignonette*: we cannot conceive that any one can need more instructions than are given in our second volume; but we will see what Mr. Beaton thinks about the matter.

Super-phosphate of Lime to Carrots (*Alfred A.*).—The very slight dressing of this which is desirable to apply to any crop, should be sprinkled over the surface, and dug in. It is a manure, like the dung of animals, of that stimulating nature, or entering so largely into the composition of the plant, that its roots will travel in the direction where it abounds. We, therefore, think it would be useless to bury it in a trench, for the purpose of inducing the roots of carrots to strike down to it, as they will to stable manure so buried.

Fuchsias (*T. M. W.*).—See an article by Mr. Fish lately. As the leaves of your fuchsias are so fresh, do not cut them down, but prune them in a little. Examine the roots; prune these slightly, but give them a good portion of the old soil.

Cactus and Hoya (*Margaret Reymer*).—We should be quite concerned if you lost your pets; but, unless they are quite dead, do not be alarmed. (See answers to correspondents lately.) When you kept them in a frame in winter, and they never flowered, we fear you did not keep them dry enough in winter, nor give them plenty of sun in summer. These, with proper soil, are the chief secrets of success. As you have them now in a warm room, give them as much light as you can; sponge the leaves on a fine warm day; and, by-and-by, if not pleasing you before, transfer them to your pit in April or May, and there keep them close and warm, and in a moist atmosphere, by giving them little or no air. Here, if they do not flower, they will get healthy. Set them full in the sun in July, against a wall; and we think that you will have plenty of bloom in future.

Pleroma Elegans, &c. (*A Young but Ardent Gardener*).—The leaves sent are eaten up with that little jumping rascal, *the Thrip*; and there is none worse to dislodge. Look at our back numbers, and you will see what is recommended to keep them down. In addition, we would advise you to try weak laurel-water, thrown forcibly over the foliage, but preventing it sinking into the pot by turning it over on its broad side. Cut and bruise the leaves of the laurel, put them in a vessel which you can cover close, pour over them boiling water, as if making tea, and then, sometime afterwards, increase the water to three gallons to every pint of bruised leaves, and syringe when it is lukewarm. Your main hope of a complete riddance of the thrip is the use of the syringe, and a moist atmosphere in spring and summer.

Cuttings of Double Chinese Primula (*Ibid*).—Place the cuttings in a sweet bottom-heat, free from damp steam; it is worthy of all your care.

Aloe (*T. M. W.*).—You may take off the sucker from your aloe in March, especially if it has got any roots; if it has no roots, you might wait a month longer; and if, after placing it in a small pot you could give it a little bottom-heat, roots would sooner be formed. The sandy loam that suits the parent plant will also suit the youngster; but if the soil is heavy, a little brick or lime rubbish may be added with advantage.

Orange-tree (*A. H.*).—The plant imported from Lisbon would have suffered less from frost if, instead of being "freely watered," it had not been watered at all before leaving Liverpool. The leaves having dropped, and the points of the shoots becoming blacked, are proofs that the cold frosty weather has injured it. Your chief hope of restoring it to health consists in keeping it a little longer where it is, in a greenhouse, with a temperature of 50°, but *shaded*; and then contriving to place the plant, with its roots, in bottom-heat, and its top in a close, warm, moist atmosphere. If vitality is not altogether gone, this will cause it to break out afresh.

Bedding-out Plants in a Vinery (*A Young Labourer*).—We presume, you want a place to transfer them to when you commence forcing, as your cow-shed was too dark for them. See what Mr. Fish and others have said upon *turf-pits*, and your own ingenuity would soon enable you to fix upon a method by which, at little cost, you might give the plants light in fine weather especially. If you have a spare space of wall, that would save you one side of a pit at once; and the front might soon be made with boards and posts. Have asphalt wood, glazed calico, straw or mat coverings, so made as to keep them *dry*.

Ants (*Ibid*).—May easily be poisoned, by mixing arsenic with sugar or honey; and easily dislodged, by pouring lime-water into their fortresses.

Wash for Vines (*Ibid*).—This may be put on cold or *hot*. If not *too* hot, it will be all the better to be warm.

Drawing-board (*Young Gardener*).—Any carpenter (you giving him directions, and seeing that he uses seasoned wood, and lets in some pieces across the grain to keep it from warping) could make you a drawing-board. If he uses old wood, he could make you a T-piece also. You may obtain *cloth covers* for The Cottage Gardener at our office.

Geese (*F. T. Herrick*).—Water is necessary; but a large tub would answer, if five feet in diameter, and constantly full of water. Geese, for breeding, will not bear constant confinement.

Asparagus (*J. B. C*).—The plants, if grown in a single row, need not be more than nine inches apart. We once had a garden, the soil of which, like yours, would never bear a crop of *the common garden cress*. *Black currants* similarly failed. It was a very light soil, and we overcame the deficiency by giving the soil a very thick dressing of clay and lime rubbish.

Black Barley (*Pastor Rusticus*).—Our correspondent wishes to know where he can obtain some of this grain; and whether birds are less inclined to attack it than they are the common barley.

Roses (*Captain Forrest*).—You may obtain every one of the roses in the list at page 24 of our first volume of any of the great rose-growers: Rivers, Paul, Law, Francis, Curtis, &c. You are about to plant *fruit-trees* in a border covered with strawberries. These may remain for the present year, but will be injurious if left longer.

Capons (*Tyro*).—Look at the answer we gave at page 136.

Payne's Improved Cottage Hives (*A Subscriber, Rye*).—You may purchase these of Messrs. Neighbour & Son, High Holborn, London. Drawings and full descriptions of them are in our first volume, pages 239 and 305.

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WEEKLY CALENDAR.

M D	W D	FEBRUARY 28—MARCH 6, 1850.	Weather near London in 1849.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
28	TH	Yew Flowers.	T. 50°—31°. S.W. Rain.	50 a. 6	36 a. 5	8 19	16	12 48	59
1	F	David. Heath Snail appears.	T. 49°—39°. N.W. Fine.	48	38	9 a.33	17	12 37	60
2	S	Chad. Pilewort flowers.	T. 51°—34°. S.W. Fine.	46	39	10 43	18	12 24	61
3	SUN	3 SUNDAY IN LENT. Rooks build.	T. 53°—41°. S.W. Fine.	43	41	11 52	19	12 12	62
4	M	Mistletoe flowers.	T. 58°—21°. S.W. Fine.	41	43	morn.	20	11 58	63
5	T	White Dead Nettle flowers.	T. 54°—26°. S.W. Fine.	39	45	0 56	☾	11 45	64
6	W	Dor Beetle appears.	T. 55°—41°. S.W. Fine.	37	46	1 56	22	11 31	65

ST. DAVID, the patron of Wales, is commemorated on the first of March; and the poet not unaptly writes:—

> "March, various, fierce, and wild, with wind-crackt cheeks,
> By wilder Welshmen led, and crowned with leeks."

In the west of England, where March is called *Lide*, and *Ramsin* is a species of onion, the following lines are popular:—

> "Eat Leeks in Lide, and ramsins in May,
> And all the year long physicians may play."

In the north of England this proverb is common, indicating the time when heavy soils ought to be fit for sowing:—

> "Upon St. David's day
> Put oats and barley in the clay."

St. David, who was Archbishop of Minevia, now called by his name, flourished at the close of the 6th and early part of the 7th centuries.

ST. CHAD was a native of Northumberland, and born of Saxon parents. He was the chief agent in converting the Mercians to Christianity, being at the time a hermit, residing in a cell at Litchfield, in Staffordshire, on the spot where now its church, dedicated to him, stands. He officiated as Archbishop of York whilst Wilfrede went to Paris for consecration; and on the return of this prelate St. Chad resigned the office, and soon after was raised to the Bishopric of Litchfield. He died on this day, in 673.

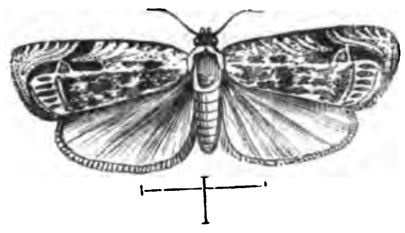
METEOROLOGY OF THE WEEK.—The average highest and lowest temperature of these seven days, during the last twenty-three years, have been, respectively, 48.5° and 35°. During the same period there were 96 fine days, and 65 days on which rain occurred. The lowest temperature during the period was on the 1st in 1847, on which day the thermometer fell to 24°.

NATURAL PHENOMENA INDICATIVE OF WEATHER: *The Leech.*—We are indebted for the following to W. H. Attree, Esq., Surgeon, 9, New Cavendish-square:—"1. If the weather proves serene and beautiful, the leech lies motionless at the bottom of the glass, rolled together in a spiral form. 2. If it rains, either before or after noon, it is found crept up to the top of its lodging, and there it remains until the weather is settled. 3. If we are to have wind, the poor prisoner gallops through its limpid habitation with amazing swiftness, and seldom rests until it begins to blow hard. 4. If a remarkable storm of thunder and rain is to succeed, for some days before it lodges almost continually without water, and discovers uncommon uneasiness, in violent throes and convulsive-like motions. 5. In the frost, as in the clear summer weather, it lies constantly at the bottom; and in snow, as in rainy weather, it pitches its dwelling upon the mouth of the phial. 6. Perhaps it may not be amiss to note, lest any of the curious should try the experiment, that the leech was kept in a common two-ounce phial, about three-fourths filled with water, and covered with a bit of linen rag. In the summer the water is changed once a week, and in the winter once a fortnight. This is a weather-glass which may be purchased at a very trifling expense.

RANGE OF BAROMETER—RAIN IN INCHES.

FEB.		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
28	B.	29.874 29.681	29.593 29.388	29.434 29.004	29.638 29.480	29.933 29.917	29.952 29.664	30.229 30.197	29.419 29.244	29.624 29.331
	R.	—	0.33	—	0.08	—	—	—	0.01	0.84
March 1	B.	29.693 29.584	29.588 29.226	29.851 29.676	29.459 29.339	29.929 29.904	30.056 29.952	30.384 30.275	28.907 28.637	30.026 29.426
	R.	0.10	0.03	—	0.04	—	—	—	0.11	—
2	B.	29.685 29.393	29.766 29.701	30.029 29.961	29.429 29.372	29.858 29.858	29.953 29.928	30.508 30.417	29.106 29.540	30.283 30.126
	R.	0.30	0.41	—	0.04	0.10	—	—	0.11	—
3	B.	29.665 29.315	29.856 29.839	30.159 30.070	29.427 29.359	29.841 29.545	29.869 29.705	30.491 30.488	30.064 29.870	30.461 30.366
	R.	0.02	0.01	—	0.20	0.28	—	—	0.03	—
4	B.	29.904 29.818	29.957 29.918	30.378 30.298	29.513 29.240	29.908 29.900	29.491 29.403	30.474 30.375	30.122 30.000	30.459 30.447
	R.	0.08	—	—	0.48	—	0.12	—	0.04	—
5	B.	29.857 29.299	30.036 30.008	30.370 30.331	29.806 29.762	30.075 29.949	29.599 29.471	30.265 30.250	29.808 29.742	30.605 30.457
	R.	—	—	—	—	—	0.27	—	0.40	—
6	B.	29.960 29.723	29.992 29.813	30.269 30.231	29.924 29.740	30.229 30.205	29.729 29.549	30.170 30.022	29.859 29.787	30.618 30.280
	R.	—	—	—	—	—	0.02	—	—	—

INSECTS.—The small moth represented magnified in our drawing, but of which the natural dimensions are represented by the cross-lines beneath, is one capable of being a most severe scourge to the fruit grower. It is the Apple Tortrix, and known among naturalists as the *Semasia Wœberana*, *Carpocapsa*, and *Pyralis Wœberana*, and some other names. The moth appears in June. The fore-wings are a dirty orange colour, marked with dark bands, and numerous silvery and golden lines on their front edge, and fringed with black and dirty orange. The hind-wings are greyish-brown, with a pale fringe. They lay their eggs within the cracks of the bark of the apple and plum; and their caterpillars, which are dirty green, with red heads, feed upon the inner bark and alburnum of the trees. This causes gumming in the plum, and canker in the apple. A very good representation of its ravages may be seen in the 80th plate of the second volume of *Westwood's Moths*. There are also some observations upon the same subject by Mr. Spence, in the *Horticultural Society's Transactions*, vol. ii.



WE have withdrawn all our editorial observations to-day, to make room for the great mass of interesting correspondence we have received; but, although we have done this, we have many letters which must wait until we can provide room for them. So great is the amount of information for which we cannot at present provide space, that we must enlarge our columns; but it shall be without either altering our size or increasing our price.

THE FRUIT-GARDEN.

WE must again handle more than one subject, for at this particular juncture a host of matters press, both out-doors and in.

PINES.—At page 195 we hinted that an increased amount of light would be the signal for an increased temperature, and for making what rearrangements might become necessary preparatory to a course of summer and autumn culture. In the first place, if any new bottom-heats of fermenting material have to be made they should be proceeded with instantly, if possible. Tree-leaves make an excellent and long-enduring medium of heat; they are better, however, mixed with one-fourth their bulk of dung which has been sweated in a heap for a week or so. Four feet in depth of this material, slightly but regularly trod during the process of filling, will produce of itself a heat of nearly 80° until next September. It is customary with gardeners to case it over with tan; this is a more convenient medium to plunge in, and, withal, acts both as an increaser and controller of the heat below; for leaves are apt to dry too suddenly at the surface, and they moreover lay so loose and open as compared with tan that, although the pot may be plunged full depth, yet not above one-third will receive the benefit of bottom-heat.

The pits or other structures intended to receive pines in any of their stages had better receive a coat of lime-wash; and as it is proper that the bottom-heat should be fairly up before introducing the pines, there will still be a fortnight to spare before any thorough rearrangement takes place, and during this period the liming or other matters may be carried out.

If the heat of such structures depends entirely on fermenting materials, our practice is to put about 15 inches in depth of new tan; not, however, plunging the full depth by any means on their first introduction; indeed, we merely stick the ends of the pots in the tan, adding new tan at intervals as necessary. Where there is a tank bottom-heat, the case is altogether different; here no tan is absolutely necessary, although Mr. Hamilton, whose system must be known to most of our readers, chooses to thrust new tan amongst the stems of his pines, on the Hamiltonian system, occasionally.

Whilst the heat is rising in the pits, we think it advisable to commence watering where needed. The Black Jamaica pine with us (see remarks at page 263) never receives a drop of water from the beginning of November until the middle of February; indeed, we have Jamaicas now, strong successions, which will not receive water until the very end of the month, and we are not thoroughly assured that it will even then be necessary. However, the Queen section requires a somewhat different treatment; these will enjoy twice the amount of water which some of the Black section require. Still much depends on the amount of pot room the plants possess, and whether very full of roots or not: if planted out they will not require one-fourth part of the water, provided the bottom-heat is rightly contrived. In all cases of doubt with the amateur, he had better water too little than too much; the former may cause a diminished amount of luxuriance for awhile, but the latter may totally destroy the young spongioles, and then a decided and sudden check will be the result, which will be exceedingly prejudicial.

Where the pot system is the order of the day, some shifting may be necessary in the early part of March. We think it not good policy to shift young stock which has not yet become pot-bound, provided the soil is as it ought to be, and always will be under good culture, still fresh, and the drainage complete. We may remark here that the time of receiving the final shift into the fruiting-pot should be, in some degree, determined by the period at which the fruit is required to show or rise. We should say that, taking pines in the lump, some eight or nine months may be fairly counted on as elapsing between the last repotting and the showing period; some will be more, some less, but this will serve to convey an idea to the uninitiated.

The Potting.—Having provided some soil of a good staple, with pots of a proper size, and proper materials for drainage, nothing is needed but forecast to secure the plants from injury in their transit from one structure to another, and from one pot to another. An intermediate structure of any kind, if at liberty, may be used as the medium of transit, for it is rather tedious work to remove and plunge each pot as the performance proceeds. Such expedients, however, will naturally be resorted to; the main business being to prevent a sudden declension of temperature from chilling the roots; any place indoors will give immunity to the tops.

But we come now to an important matter: *how* to repot them.

Nothing is more eligible than a turfy loam, about six months old, which has been piled in a shed, or out-house, and has become dry: this is the principal ingredient with us. Such may be cut in bits with the spade, and those bits being shaken in a very coarse riddle or sieve, in order to reject all the mere soil which falls from it in attrition, will be lumpy, fibrous matter, which is almost complete in itself for pine culture. We add some old half-decomposed manure, generally leaves and dung, in the proportion of one part to two of the loamy turf; we also add some rubbly charcoal, to keep the soil open for a length of time. It is always best to give a bold shift; small shifts are a poor peddling proceeding; the gain is not commensurate with the ceremony and disturbance caused to the roots. Drainage is the great essential; many persons are apt to trust to only one huge crock or oyster-shell over the central hole at the bottom of the pot: we do not. We place three or four, overlapping each other in such a way as that four or five bold issues shall be provided. Over this we strew a layer of imperishable materials, composed of equal parts pounded crocks, boiled bone, and charcoal in lumps as large as horse-beans. Next, a litttle turfy material—the soil mostly shaken out; and on this we set the ball. In filling up round the ball, it is advisable to keep thrusting small lumps of turfy material as the filling proceeds, and thus to near the top; continuing to introduce the compost until within about three inches of the rim, when we place a layer of the chopped turf all over the surface, and on this the finer portions of the compost, until nearly or quite level with the rim of the pot.

We must now take leave of the pine for the present, and will return to the subject in a week or two, if possible.

Vine-forcing.—At page 195, we offered observations on root-management, we may now give a few hints about the course of culture necessary with the young shoots. The first process in vine-forcing is disbudding; and the second "stopping," as it is termed; indeed, they frequently proceed together.

Disbudding is absolutely necessary, for most vines, in a tolerably healthy state, produce double or treble the amount of shoots it is requisite to leave on them. They could not perfect the produce in the first place; and, in the second, the trees would become completely smothered for want of more training space. As soon, therefore, as a selection can be made of the bearing shoots, or any necessary to be retained, in order to furnish training space, so soon should disbudding take place. It is well, nevertheless, that it should be done successively; a good vine-dresser removes a few shoots almost daily; for vines require constant attention until the thinning out of the berry is completed, when most of the subsequent proceedings are resolved into a proper regulation of the atmosphere, and a due attention to the root. Let it be remembered that over-cropping is always bad policy: it not only deteriorates the produce, but enervates the very constitution of the tree, and lays the foundation of premature old age. It is somewhat difficult to say how much a given vine should carry, so much difference exists in point of energy. As a general principle, we may say that the root being good, all the rest is dependent on the amount of light; and that the number of square feet of roofing may of itself be allowed to determine the question. We should, therefore, say, that one bunch of a pound weight to every two feet of roofing-surface is a good crop; this is, of course, supposing the vines to be equally grown and trained over the roof, and that they are placed, as it were, by measurement; such, however, is seldom the case, and, therefore, vines are made to carry more in one portion than another. Vines, confined merely to rafters and closely stopped, are generally allowed from 10 to 15 good bunches; this, of course, dependent on the length of rafter.

We need scarcely advise [the amateur about the mode of stopping; most people stop at one joint beyond the "show," or bunch. This is more a matter of expediency than principle; for it would not do, in the majority of cases, to let them extend farther, for they would soon monopolise the space which should belong, of right, to the neighbouring bunch; and, like folks at a dinner-table, too much elbowing is not very agreeable.

We will return to vine-culture again, shortly.

Planting, Pruning, &c., Out-of-doors.—Once more we say, let all planting, intended to be carried out this spring, be at once completed. We do not like this late planting; still there are those who do; and again, those who are compelled to do so, and on such we urge its completion. All wall-trees, or, indeed, any trees of choice character, and which have attained considerable size, should, on removal at this late period, have some kind of shade tacked or hung before them. This will prevent the injurious effects arising from intense sunlight, which causes a "draw" on the vital forces, not at all compatible with the torpidity of the root. Such, also, preserves a more regular amount of atmospheric humidity in the vicinity of the branches—a thing of much importance; and those who can, will do well to frequently wet such a shade. Pruning must all be completed forthwith, except with figs; those may remain until the true character of the young wood can be ascertained.

Mulching.—Let all newly-planted trees receive a mulching immediately, if only of half-decayed weeds, rotten straw, or thatch,—or, indeed, anything of a porous character; if enriching, so much the better. We prefer horse-droppings, or rather, the shorter portion of stable door dung, in a fresh state, just roughly shaken over, and merely the longest removed.

Staking.—This is all-important when fruit-trees of some size are removed. If they are permitted to be rocked to and fro with our March storms, all the benefits of careful planting and mulching will be negatived. R. Errington.

THE FLOWER-GARDEN.

Propagation by Cuttings.—Those who have grounded their practice on making all kinds of cuttings according to the dictates of vegetable physiology, have often found themselves at fault, without being able to discover the cause of their failure. They insist on keeping as many of the leaves entire as the cutting-pot will hold, even at the risk of having the leaves laying close on each other; because they believe they have been taught that the more leaves a cutting has, the faster and more sure it must root; but there never was a greater mistake in gardening; and physiology, in its true meaning, never taught anything so absurd. It is but too true, that writers on the higher branches of our art have often made use of obscure expressions, which are difficult to understand, but very easy for a young beginner to misapply; but that does not alter fundamental laws.

Many cuttings will strike roots in the open air without any leaves; some will only root when the leaves are present; others there are, on which the action of the leaves in the open air, or even with the air partly confined, as in a hot-bed, is so powerful that by perspiration it exhausts the juices of the cuttings long before roots can be formed to suck up a fresh supply to sustain the life of the cutting.

I believe most readers of this work are aware that leaves can only perspire under the influence of light; and, therefore, it follows that if cuttings could be made to grow in total darkness, there would be no perspiration from the leaves, and, consequently, no waste of the substance of the cutting, and all might go on safe enough. But cuttings will not live in darkness any more than will living plants; therefore, we must try some other scheme with them. Let us suppose that we have no better arrangement than a close hot-bed, and we have just seen that certain cuttings failed to keep up their leaves in such a place, because there was still too much free air in this bed for the safety of our experiment. This is not a rare thing with gardeners, but of every-day experience; and those of them who adhere strictly to the rules of physiology, and will not reduce the leaves of their cuttings so as to suit them for a particular arrangement of means, seldom shine in the propagating department; whereas others, who are less scrupulous on that head, make very light of natural laws, and of two evils they choose the least. They know very well that the more leaves are left on a given cutting, the faster it will root—provided that such leaves are accommodated so as to insure their safety; but, finding their own means insufficient for that purpose, they violate the letter of the law, and reduce the leaves to such a point as will come within the capabilities of their propagating means—say a common cucumber-bed. Now, a bed of this sort must have air given it every day, more or less, according to the weather; and we have seen that certain cuttings will not stand even a close hot-bed when their leaves are all left on, much less can they stand secure in a bed with a portion of air on; and in that case, more leaves must be sacrificed to reduce the perspiring surface. And if we are deprived of even a cucumber bed, and must root such cuttings in a greenhouse, or vinery, a still greater proportion of the leaves must be cut off, otherwise the free access of the air to such structures would soon reduce the substance of the cuttings. Now, when physiology issued the laws of propagation it did not take any of these make-shifts into account, but rather took it for granted that the conditions necessary to insure success were at hand. The most essential of these conditions being a bell-glass to cover the cuttings so as to cut off all communication with the surrounding air, and to maintain a uniform humid atmosphere around them, thus doing away altogether with the stimulus to perspiration, which, as we have seen above, would soon exhaust the leaves of their juices before they had time to form the matter from which roots are made.

The condition next in importance is a smart *bottom-heat*, of from 80° to 90°, to stimulate the leaves and young wood to the utmost of whatever power they may possess; and the third requirement is a *partial shade* from the rays of the sun; what follows after that relates entirely to practical management.

Those, therefore, who cannot command these favourable conditions, which are essentially necessary for success, in the case of cuttings, which are difficult to root—conditions, too, which physiology presupposed—cannot possibly succeed with cuttings made on this best model; when they are practically excluded from the advantages of a perfect apparatus for their propagation. Hence it follows, that instead of making our cuttings, under all circumstances, according to the best rules, we ought rather to prepare them according to our means, for their future management—and so *reduce their leaves according to the quantity of air which must necessarily reach them where they are set for propagation;* and here lies the whole secret of propagation. The proverb of "cutting according to your cloth," cannot be better illustrated than in the right preparation of cuttings; if we cannot exclude the air from them, we must cut away part of their foliage; and how much ought to be so cut depends on the quantity of air, so to speak, which can reach them, and on the nature of the cutting itself; for there is an immense difference in the constitution of plants with respect to their power of forming roots from cuttings.

Although the art of propagation is as familiar to the great body of gardeners as the process of planting cabbages, there are many good gardeners, and a greater number of expert young men in other branches, who, with the greatest care, make but a sorry hand at increasing plants by this process. When we turn to the practical part of propagation, we meet with more degrees of comparative merit than the grammarians ever dreamed about: good, bad, and indifferent propagators give but a faint idea of how these things are managed, or mismanaged. We must, therefore, walk in amongst them, and judge for ourselves from their productions. Here is an honest, hard-working fellow, who knows as much about the philosophy of his operations as I do about the "Milky Way," and yet, by a long course of plodding industry, has acquired the exact manipulation necessary to insure the rooting of all the kinds of cuttings he is required to produce; and his only fault, or rather his misfortune, is that he cannot possibly tell how a new plant ought to be treated beforehand. He must first experiment on it. Now, a little fire-side philosophy would be of immense use to him, and he knows it. But his next door neighbour has too much philosophy, which makes him so confident, that he overlooks the necessity of constant attention, without which no man has ever gained much credit in this line. He not only neglects his cuttings, as any one may see by those withered leaves in his cutting-pots, the gaps in others, and the general mouldiness of many of the rest, but with his bad propagating place, he must needs make all his cuttings in the first style of his art, which, of course, aggravates his misfortunes.

But enough;—the means of commanding success in propagation lie in a small compass: attention to small matters and vigilance are the mainsprings. No matter how many thousands of cuttings one has to attend to, he ought to see every one of them at least once a day, and that as early in the morning as possible. A practised eye will soon run over a thousand cuttings, and detect what is amiss with any of them; but this can never be done from books; nothing short of actual practice for a short time can enable one to see the symptoms of disease and danger; but all of us may learn to keep our frames, glasses, cutting-pots and cuttings, with mould, sand, and tallies, in a perfectly clean and tidy condition, and when we do, half the battle is won already. The least appearance of *mouldiness* in any part of a cutting place must be checked as soon as it appears, for of all the dangers incident to a bed of cuttings, this is certainly the one to be most dreaded. And one of the most usual ways of inducing this mouldiness is the use of green wood for making the tallies or number sticks; for every pot must have its own label, if you only rear two pots of any kind of which you possess more than one variety. No sooner is a bit of green or sappy wood subjected to a close damp atmosphere, than it begins to mould at the surface of a pot, and if overlooked but for one day, will assuredly kill some of the cuttings. As soon as a leaf, or part of a leaf, is damped off, or covered with the mould fungus, that leaf or the part must be cut away; and for this part of the business nothing is so good as a pair of long pointed scissors, such as we use for thinning grapes with; and the most slovenly way is to maul over them with the finger and thumb.

Watering Cuttings.—The old receipt of "often, and little at a time," by which so many thousand plants have been destroyed, is still the best to follow with respect to cuttings. They are inserted so shallowly in the pots, that even when they are so far advanced as to have formed a few roots, if a couple of inches at the top is kept moist, it will be more safe than if the whole ball is wetted through. The rule is, that the top of the pots ought not to be dry for many hours at a time; and where many are to be attended to there ought to be a very small pot kept on purpose for them; and the mouth of the spout can hardly be too small for them; but as such a spout is of little use after the cutting season is over, I have found the following plan very useful:—Take a stick, about three or four inches long, and drive it firmly into the spout, but not so as to fill it as if corked; the stick must be flat on two sides, so as to allow a small space on either side to discharge the water—the two currents will meet at the outer end of the stick, and ought then to be as thick as if discharged through a large quill; with this contrivance you can water the smallest pot with ease, and without displacing any of the sand. A small rose-pot would answer the same purpose, but it often happens that only one pot, or one here and there, require water when you go over them; and if the pots are very close together, you can hardly water with a rose without letting some fall on neighbouring pots, whether they want it or not; but with the spout thus reduced you can supply the requisite quantity with the greatest nicety; and the moment the cuttings are done with, the stick may be withdrawn till the next morning; for recollect, the cutting-bed is to be looked over every morning, without exception, and if only one pot out of a score needs water it must have it. And in the afternoon of fine days, as soon as the shading is removed, give a slight watering all over the bed—pots, cuttings, and all; and in dull weather it often happens that this kind of watering may do for a whole week.

Seeds.—Except of the very hardiest annuals, I sow very few seeds for the flower-garden till the first and second weeks in March. But to have *Sweet peas* for cut flowers from the middle of May till the frost stops them in the autumn, I sow a row now, and a few dozens of pots to be half-forced; another sowing in the first week of April, and a third about the 20th of May. *Intermediate Stocks*, to flower from the middle of July, I sow now in peat, and harden them off as soon as they are well up. But I shall go on with both kinds of propagation for a long while yet; meantime, I should like to hear what difficulties you have met with—if you ever attempted propagation, and the exact convenience you possess to strike cuttings, and then I can make my notes accordingly. Never mind about troubling us, only write briefly, and to the point.

D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

Cuttings.—Owing to the necessity of having articles written somewhat in advance of the day of publication, it will sometimes happen that those whose departments come pretty near each other may, either during the same week or in the one immediately following, quite unintentionally treat upon the same subject. This is of little consequence so far as the writers are concerned, not one of whom would care a bit if a neighbour was to take a random shot even in one of his choicest preserves—knowing full well that he was at liberty to reciprocate the favour whenever he thought proper. But some readers might fancy it to be no privilege to have much the same identical ideas dished up for two successive weeks, the difference consisting more in the garnishing and fittings than in the solid materials; while others, and perhaps not the most foolish class of the two, would be delighted to find that, with a little difference in the mode of getting up, the chief essentials were so much alike. After writing the article upon propagating by cuttings, I had some conversation with a young lady, who, acting no doubt upon the fact that the sisterhood is a privileged class with the Knights of the Blue Apron, pretty well turned my cranium inside out with her questions upon this subject. Her inquiries chiefly having reference to the mode in which cuttings ought to be made—whether it was necessary always to cut to a node or joint? the processes that took place before roots were emitted? the difference, if any, between cuttings inserted in a deciduous state and those with leaves on them? how the base of the cutting would *rot*, while roots would be protruded, at times, from the whole of the stem above the soil? how, in the case of cuttings cut at both ends, either end would form roots? &c.; all of which convinced me, that, at the risk of being considered rather *green* by the *grey beards* of wisdom, we must at times combine philosophy and simplicity if we would wish both to *obtain* and *retain* the sympathies of friends who are zealous, but young in gardening. Some of these matters I thought of noticing more in detail, when The Cottage Gardener for the 14th arrived, containing Mr. Beaton's article, which supplied several of my omissions; and judging it would not be prudent to administer an overdose, even of a good thing, I have, among other matters competing for notice, given the preference to the inquiries of a correspondent respecting the management of *Gesnera zebrina*, *Gesnera elongata*, and *Begonia argyrostigma*, chiefly because the treatment necessary for the first-named has been frequently asked, while it is so accommodating that those possessing a little artificial heat may have it either in stove, greenhouse, or window.

Gesnera Zebrina.—Of all the beauties of this family, the present species, a native of Brazil, may well be considered the gem; not so much on account of its scarlet, yellowish flowers, as owing to the Zebra-like markings and shadings of its thick, soft, velvety leaves. The obtaining of fine flower-spikes is a matter of importance; the size and vivid colouring of the leaves are more important still. No wonder, though ladies look on them with admiration, blended at times with a spice of envy, that neither silk nor velvet can be found to match them. Allow your plants to have small, curled, unhealthy leaves, and the less that is said or seen of them the better. The maintaining healthy, high-coloured leaves is, therefore, the principal thing to be considered in their cultivation, and that is just the thing to secure fine spikes of bloom.

Our correspondent is quite right in allowing the roots, after they have done flowering, to remain in a state of rest. In that repose they ought to continue for several months before being excited into growth. The pots in which they grew may be turned on their broadsides, and any place with a temperature not much below 45° will do for storing them. They therefore take up no room, unless when growing. When you wish to start them, they like a temperature of about 60°; and you may either water the pot in which they formerly grew, or break the ball carefully and take out the scaly tubers, and place them in light soil in shallow pans, there to receive moisture and heat, until they spring, when they may be potted. In general, one good pot of last year will furnish you with tubers for half-a-dozen this season. As they increase so freely by underground stems or tubers, it is hardly worth while resorting to other means, though they propagate freely by leaves. Where successional crops of them are desirable, such as where there is a plant stove, the first of one year should be brought in as the first for the following. When you have only a window or greenhouse to place them in, one crop will generally be enough, one that will produce its flowers in summer and autumn. March and April are good times for starting plants for such a purpose; for flowering in autumn and winter in the stove, May and June will be time enough.

We have spoken of 60° for starting them, though less would do; and in summer, especially when subjected to stove treatment, they will, when starting and growing, be subjected to a much higher temperature without injury. In speaking, therefore, of their growth in a stove, the matters referred to will suit them in any other position.

First. *Soil.*—Peat earth as the staple, with a fourth-part of equal proportions of the following:—turfy-loam, leaf-mould, silver-sand, charcoal, and a little dried cow-dung, over a plentiful drainage.

Second. *Pots and potting.*—We have placed a single tuber in a five-inch pot, and obtained from that a good spike of flowers; have placed a tuber in a four-inch pot, shifted again into one of eight inches, and obtained a splendid main spike, with eight or ten spikelets; or have placed six or nine tubers in a nine or twelve-inch pot, or in a pan half the depth of a pot, and thus obtained a beautiful mass.

Third. *Watering.*—This should be done with care, until the roots begin to occupy the soil; then liberally, when the flower-stalks appear; weak manure-water several times then will assist them, and not injure the foliage.

Fourth. *Steaming.*—Avoid as much as possible.

Fifth. *Syringing.*—Never think of, if you can avoid it.

Sixth. *Light.*—Let the plants be fully exposed, but yet at such a distance from the glass that the rays of the sun will be diffused before reaching the leaves, otherwise blotches will take place, more especially if any damp should rest upon their upper surface.

Where there is a vinery the plants may be started there, and either bloomed there or in the greenhouse, placing them at first in the warmest end of the latter. The shade of the vines will tend to increase the size of the leaves, at the expense of their colour, if not kept as much as possible in the light.

With the assistance of a dung-bed they may also be successfully forwarded for the greenhouse or window; only, as they grow in the bed, they must be kept at a distance from the glass, no *steam* allowed to touch them, and air left on night and day, that the leaves on their upper surface may always be dry before the sun shines upon them.

By shutting in a space at the warmest end of a greenhouse, over the heating apparatus, and covering with a hand-light, plants may be obtained towards the end of summer to bloom either in the greenhouse or window. Make all changes of temperature gradual.

A similar system will suit other gesneras, either with scaly or bulbous tubers, but few will require so much attention, so far as moisture and light are concerned.

GESNERA ELONGATA.—This flowers chiefly in winter and spring. When done flowering, cut or prune the plant, and the fresh growth will furnish plenty of bloom when the proper season arrives. It dearly likes heat; in its most dormant state, the temperature should never be below from 45° to 50°. It may be taken as a type (so far as management is concerned) of the shrubby kinds; propagates freely from cuttings.

BEGONIA ARGYROSTIGMA.—A species of easy management, where you can command a temperature of from 45° to 50° in winter.

Soil.—Loam and peat; may either be pruned in, or cut down every year. The white spots on the leaves are its only attraction; the flowers are white, and nowise captivating. In a limited space it is not worth its room. R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

OPERATIONS IN THE ORCHID-HOUSE FOR MARCH.

THE greater part of the orchids will now be beginning to grow. Continue to *pot* all such, giving plenty of drainage, and increase the heat; give *water* at the roots, *moisture* in the air, and frequently *syringe*. These stimulants to growth must only be applied when the weather is fine; in dull, dark, rainy weather it will be advisable to withhold them in a great measure. In using the syringe, care must be taken that no water lodges in the hearts of the young shoots; should that be observed, the water must either be sucked out with a tin pipe or the plant held upside-down to allow it to run off. If the water is allowed to remain in the hollow of the young leaves it is almost sure to be the death of them, especially at this early season of the year; we always make it a rule, and have practised it ever since we commenced cultivating orchids, *to allow them to become dry once a day.* Our readers who are orchid growers will be wise to attend to and practise this rule, even in the height of the growing season. If they are kept constantly soppy and wet, depend upon it you will lose some of the shoots that ought to grow this year and produce flowers. Give them, when the bulbs are nearly full grown, abundance of water. There is not so much danger then, but, we must repeat it, let them become dry once a day.

Plants in baskets, when dry, must be dipped in the warm tank or cistern: see the 70th number of this volume, page 235, where, in describing the routine work for February, we entered fully into dipping baskets, and at the same time recommended washing the leaves. If this work has not been done, delay it no longer; the plants must feel uncomfortable, and will become unhealthy with such dusty, dirty skins. *Baskets* will require dipping at least once a fortnight now, and oftener in summer. The operator will be guided by circumstances: when a basket is taken down and found not to be dry, it must, of course, be hung up again; but this will very seldom be the case. If a basket do not dry in a fortnight the compost in it must be too close, and require stirring and opening.

Phalænopsis amabilis and *P. grandiflora* will now be growing both in roots and leaves, and ought to be dipped in the tepid cistern almost every morning. When the day is promising to be fine and sunny, dip them quite over-head (excepting the flowers); on dull or rainy mornings dip them only up to the leaves.

Syringing the blocks, generally, will be more necessary now as the days increase in length, but be careful of the young shoots, that the water does not lodge in them for any length of time; blocks can be easily turned upwards and the water discharged. In their native places these plants grow on branches of trees, hanging downwards, and so the young shoots never suffer from excess of moisture.

Air.—This necessary element may now be given in large quantities, and for longer periods, especially to the cooler or Mexican house; care being taken that the air does not blow directly upon the plants, especially at this time of the year. Remember however the *Barkerias*; they will bear a moderate drought even now. *Shade.*—If shade has not been used hitherto, let it now be placed upon the house to be ready whenever the sun breaks forth upon the plants. We may certainly expect it before the end of the month to be too strong for the leaves of orchids, therefore delay no longer, or your plants may suffer for your procrastination.

FLORISTS' FLOWERS.

TULIPS.—These gay ornaments of the florists' garden will now be peeping out of the ground. The anxious owner will watch them every day to find out which are shewing bloom, and whether that is likely to be bold, strong, and healthy; if all is right in appearance, his great care and attention must be directed to keep them so in reality. Though the tulip in general is a perfectly hardy plant, yet they (the finer varieties) have been so high-bred by crossing, that some of them are more tender than the original species; hence arises the necessity of protection, especially in our changeable climate. Some fine afternoon a gentle shower may fall, leaving in the hollow of the rising leaves large drops of clear, pellucid water; a frost may follow, and if the fine tulips are uncovered and exposed to its influence the water left by the shower will freeze, and the effect will be crippled flowers, spotted leaves, and every symptom of disease and destruction to the hopes of the florist winning a first prize. These sad effects may be prevented by protection; a slight covering will suffice, provided it is raised a distance from the plants. Our able friend, Mr. Fish, has sufficiently explained the philosophical effect of covering plants with a stratum of air between the covering and the plants to be protected, therefore we need not enter into it, but refer our readers to his excellent paper on the subject. The only thing that we insist upon is a constant watchfulness in applying the coverings, from this time till at least the middle of April. It may be safe to leave them sometimes, but it is never certain to be so; on that account, when a florist has a valuable stock of tulips, and wishes to keep them in perfect health and bloom them to the greatest perfection, we advise him by all means to cover up securely every night till the time we mentioned above. By that time it will be necessary to place over the shading canvass to protect the opening blooms. Should the surface of the soil appear baked or beaten hard with the rain, let it be stirred with a small short three-pronged fork; this will refresh them greatly.

T. APPLEBY.

THE KITCHEN-GARDEN.

Asparagus Beds or plantations, not already surface forked, should be attended to at the earliest favourable opportunity; and the soil should be hand-scarified, in order to get it in a well pulverized condition, without which the young shoots will not only be longer finding their way through the surface soil, but may also, in consequence, grow crippled and crooked. In showery weather sow broadcast, in quantities, little and often, some common salt. This recommendation also applies to the ground which may be preparing for new plantations. Some years ago it was customary, at this season, to commence the casing or earthing-up of the asparagus beds (as they were then termed) to a considerable depth. The asparagus in those days being generally planted in four-feet beds, three or four rows of plants in a bed, and an alley between each from two to three feet wide, with a stake at each corner not only to mark the boundary, but also as a guide by which to cut out the allies at this earthing-up season. The beds were thus laid up high and dry by such practice. The shoots that found their way through such a mass of surface-earth could be cut long, and blanched, though the plants were at the same time, in a dry season, much punished and exhausted; and the beds, at the time they were expected to be the most productive, were often found to have given way—subject only to blight and disease.

As the planting season is now fast approaching, it may not be amiss to state our own system and success in the culture of asparagus for many years past. In the first place, we choose out our ground in winter, to be well trenched into ridges, applying at the same time a liberal quantity of manure, if it can be afforded; but this is not of so much consequence at the trenching time as is the thorough performance of the latter operation. And every suitable occasion should be taken between the well trenching of the soil and the planting season to well fork, scarify, and expose the soil as much as possible to the influence of the sun, wind, and frost; at the same time, if it is possible to command it, strew salt, little and often, over the ground, and apply manure of the best quality pretty liberally as well.

Asparagus is a most wholesome vegetable, and is well appreciated by all who have been fortunate enough to obtain it of first-rate quality; to produce which in abundance a good preparation is of course necessary. The soil must be selected of the best kind, and thorough drainage secured. The ground must be thoroughly trenched and subsoiled, abundance of manure methodically applied, and the whole well incorporated together by often forking and turning—not when wet weather prevails, but on dry or frosty days. And, instead of planting four rows on a four-feet bed (if plants are not required for forcing every year), plant in rows on the surface of the soil, four feet apart, and one foot from plant to plant. Hoe and scarify the earth's surface frequently throughout the summer and favourable part of the year, adding every season a good portion of salt and other stimulants, and the amount of production from a few rows of plants will be found astonishing. If a quantity is required yearly for forcing, plant two feet apart from row to row, to stand for two years, when every alternate row should be taken as required; at the same time the young plantation should not be planted till the plants in the seed-bed have made shoots from one to four inches long, which is generally from the middle of March to the middle of April, taking the variation of the different parts of the country.

The *forced* asparagus will require at this season to be pretty liberally supplied with tepid water and liquid manure, with salt added; and also to be well aired, and lightly covered.

Capsicums and Chillies should now be sown in heat, and the plants, as soon as up, pricked into pans or pots; one inch apart, and placed close to the glass to prevent their drawing up weakly.

Dwarf Kidney Beans may now be sown, or first raised and transplanted to great advantage on well-prepared hotbeds, with the surface covered to the depth of eight inches, or thereabouts, with old cucumber or melon soil. The asparagus forcing-beds, when cutting is over, are in this way generally turned to much account with us. We add a small quantity of well-wrought fermenting materials, forking over and well incorporating it altogether, whereby a kindly heat is at once secured; and we take care that about 1 foot or 15 inches space is secured for the beans to make their growth in, when the bed has finished sinking between the surface of the soil and the glass, if the preparation is made under frames, which may also, at any time, be raised as required. Immense crops of beans may thus be obtained at a season when there is not much choice of the superior kinds of out-of-door vegetables. A good crop of beans may thus be taken, and the frame or pit may be afterwards cleared, in due season, to insure a good summer crop of melons or cucumbers. If common frames and lights are used, they may be lifted off altogether in May, when the weather has become mild, and the beans protected slightly with hoops and mats, or any other temporary covering.

Potatoes.—The present is also a good season for placing a quantity of early ash-leaved, or early frame potatoes, on a little old tan or leaf-mould inside the front part of cucumber or melon structures, or any other place which has the command of a good bottom-heat, to sprout or shoot in readiness for transplanting under temporary coverings, on a slight hotbed. We get, by such management, very fine crops of early potatoes to succeed the first frame-grown ones. Our system is to choose our ground where Brussels sprouts, savoys, or the early kinds of brocolies have been taken. We mark out a five-feet bed, cast out a trench one foot deep, right and left; place into this trench any kind of available refuse we may have at hand, and a small portion of fermenting materials, as much as can be spared. We then immediately cast back over again about six inches of the soil, to transplant the potatoes in, and the rest is formed round as sheltering banks for protection from the wind, on which a turf scantling, rough boards, or poles are placed, so as to carry across pieces of other poles or stakes, to keep up the temporary covering from the growing potatoes at night. When the crop of potatoes from this same preparation is taken up, the ground is in good condition for planting at once a crop of celery, French beans, or cauliflowers.

Surface stirring generally, on all occasions, and amongst all kinds of crops, must be well attended to; and the ground intended for *onions*, *parsnips*, and *carrots* be kept constantly forked and scarified, so as to insure its being well pulverized.

James Barnes.

MISCELLANEOUS INFORMATION.

ALLOTMENT FARMING FOR MARCH.

Cow-keeping.—Those of our allotment cultivators, or possessors of very small farms, who keep *a cow*, or, it may be two, should seriously consider, whilst the season is young, how best to apportion it. For since high culture is on the increase with our valuable keeping roots, a smaller portion of land will, ere long, be considered sufficient for the keep of a cow than formerly. It will not answer in those times to reserve three or four acres of mere bents or windle straws on barren and uncultivated sites for the keep of a cow. The growing reports of spade husbandry will fast dissipate the slovenly and neglectful modes of treating land, which we have hitherto, but too frequently witnessed.

We think that on good soil under a high course of culture, one acre under hay grass, three-quarters under pasture, and one-quarter under high spade husbandry in roots, should at once keep a cow well, a pig or two, and furnish culinary roots, exclusive of potatoes, for the family, if not too large. Many we know will say that it is too small; few, however, yet understand the immense capabilities of land when properly handled. When the owner has five or six acres, and keeps two or three cows, besides pigs, it should be a consideration with him, whether he may adopt the culture of lucerne as part of the system. This valuable plant requires a warm soil, and must be laid down on land well manured, and thoroughly cleaned. It will produce three or four good cuttings annually, and a quarter of an acre on a five or six acre farm will be found a valuable adjunct for cow feed, as it gives no improper flavour to the butter. It must be kept clear from weeds at all times, and good cultivators hoe through it occasionally. About twelve to fourteen pounds is reckoned seed enough for an acre.

Hay Grass.—Those who have not yet shut up their hay grass should do so immediately; for the loss of the early bent is the loss of one-third the bulk of crop.

Sowing Grass Seeds.—As some of our readers may be inclined to sow down land to permanent pasture with artificial grasses, we may as well offer advice on that head; of course the selection of kinds depends on the character of soil. For lighter soils, the following will be found a good mixture: lolium perenne, 18 ℔; trifolium pratense, 3 ℔; do. perenne, 3 ℔; do. repens, 4 ℔; medicago lupulina, 2 ℔. For strong or heavy soils, take 18 ℔ of the first, 3 ℔ of the second, 3 ℔ of the third, 4 ℔ of the fourth, 2 ℔ of the fifth, and add 1 ℔ of phleum pratense. These will be found to produce a good pasture; land to produce a permanently rich pasture should be thoroughly drained, and it is capital practice to apply a slight dressing annually, even on pasturage, if only fresh soil; this encourages a fresh series of roots, and tends much to prevent the deterioration of the finer grasses. When pastures cannot be kept a-going by such means, the plough or the spade is the only cure.

Breaking-up Grass for Allotments.—For this purpose there is nothing like the spade, and whether deep trenching or mere digging should be employed the first season, depends on the character of crop to be introduced. We think that there is nothing more eligible as a first crop, or even for a second season, than potatoes, especially if it be an old sward. Farmers in Cheshire frequently grow oats the first year, and potatoes the second, following the potatoes with wheat or root crops. If for potatoes, a deep digging will suffice the first season, chopping and paring the sod or turf into the bottom of the trench. If for deep or tap-rooted plants, as mangold, carrots, parsnips, &c., the soil should be double dug or trenched; but then it must be remembered that the poorest of the soil comes to the top, and that the young plant should have some stimulating manure in the drill, or on the surface, to sustain it until it becomes well established, and by that time its extremities will be reaching the rotting turf, which will soon produce a considerable degree of robustness.

Levelling Down Ridged Soils.—From now until the end of March, those ridges which were thrown up to mellow in the autumn or winter, may be broken down for cropping; taking care to perform this culture when the ground is dry and mellow. That required for cabbages, peas, beans, parsnips, onions, &c., will be first wanted; the Swede or mangold plots, and carrots afterwards, as the latter are not sown until April.

Carrots.—The cottager or allotment holder should sow a bed or two immediately of the early Horn carrot in a warm situation, and in mellow and rich soil; these will be in use in the early part of May, and may be drawn from in succession until August.

Turnips.—A few of the Dutch may be sown in a warm and open situation in the first week in March; these will produce nice turnips in the end of April, and may be used up before Midsummer, and the ground worked up for something else.

Cabbages.—If not done, a good breadth of these must be put out immediately, taking care to manure well first, also to dig deep. If of the York or Matchless kind, they may be so planted as to receive a row of mangold in the early part of May, at intervals of four feet. The cabbages near the mangold row may be pulled first, and the rest drawn in succession. If, however, the cabbages are of the larger kinds, and intended to remain for sprouts, no crop can be introduced amongst them with safety at present.

Parsnips.—The soil for these must be dug deep, and some manure introduced in the very bottom of the trench; many crops of both these and carrots are injured by too much manure near the surface, which, if of an undecomposed character, causes them to fork, and thus arrests the descent of the tap-root on which so much depends. The bulk of these crops should be formed by a rich stratum at a low level, and the young plant "fed" during its earlier stages by stimulating and inorganic manures. Parsnips should be sown in the first or second week of March; kind, the large Guernsey.

Onions.—We like the same course of culture with the onions, that is to say, avoiding rank manures near the surface, for we are persuaded this has a tendency to encourage the grub, or rather the fly which produces it. We should advise the liberal use of any burnt material, which we find good practice. We char all the brush-wood we can lay hands on, and in the act of doing so we cover the smouldering heap with a whole summer's weeds, or other garden refuse, collecting all we can; this makes a rich vegetable mould, containing a vast amount of vegetable ashes, and such we find a capital dressing for anything, especially onions and carrots. This, indeed, is the best plan we know for working up this otherwise waste material; the seeds of weeds, &c., are sure of being destroyed if due attention be paid to the process. Onions may be sown from the tenth to the twentieth of the month; sooner lays them open to injury from April frosts, later makes them a too late harvest.

Peas.—The beginning of March is an excellent time for the cottager's main crop of peas—main crop we say, for if he can snatch one full crop from a small holding, it is all that can be expected. Very early and very late peas are somewhat too uncertain for the small allotment; they, moreover, stand rather too long on the ground, and cause too much trouble in staking. We know of none so fitting for cottagers as the *Green Imperial*. This pea has the merit of producing a glut for about three weeks or a month; it then suddenly ceases bearing, and may be drawn up and the ground dug, and recropped with some of the winter greens. We might name the ***Bishop's New Long Pod***, and another or two new and good; such, however, are half-a-crown a quart, and that is too much for allotment men; added to which, the superior character imputed to some of them needs further proof. The old ***Prussian Blue*** is another good pea. Whatever kind the allotment holder grows, he need not give more than eightpence a quart for. The pea ground should be deeply dug, and if poor some manure must be added. Very thick sowing should be avoided—a fault common with cottagers in some parts of the kingdom, who think thereby to make the most of a little compass. One quart of Imperials ought to sow twenty-five yards.

BROAD BEANS.—We would not have the cottager plant beans later than the middle of March; indeed, the last fortnight in February is, perhaps, the best time of all for a full crop. The old Windsor is the best, as we think; the Green Long Pod is a good one, and Marshall's Early Prolific a useful early kind.

SPINACH.—A bed of rich soil may be usefully employed in this vegetable, provided the cottager chooses to indulge in a change occasionally. Where rows of peas are sown side by side, spinach will grow very well in a drill in the centre; indeed, a "stolen crop" may be had from other plots. We find this, when running to seed, a very good "change diet" to cows or pigs, when their bowels are too costive. A substitution of this, for a few meals, will soon alter their bowels, and is far preferable to medicine.

LETTUCES.—Everybody knows what capital pig-feed these are; those who keep breeding sows should always have a bed or row of lettuces; if running to seed, so much the better. However, we see no reason why the cottager's wife, as well as himself, should not have a cooling salad in hot weather; and this they can do, for one ounce of Bath Cos lettuce seed will last him the whole summer. Perhaps, however, the Paris Cove Cos is the best for summer use, as it hearts well without tying. Lettuce beds cannot be too rich. A sprinkling may be sown directly, and again once a month, until the middle of July.

VARIOUS GREENS.—If any of the kale or Brussels sprouts remain standing in the way of spring cropping, they may be removed to any out-of-the-way plot; if shady, so much the better. A bed should be got ready directly for sowing a fresh supply; the main crop of green kale savoys, and Brussels sprouts, may be sown towards the twentieth; the period of sowing, however, depends on whether it is to be a principal, or only an intermediate, or secondary crop; in the latter cases it must be sown with reference to the time the spaces will be ready for it. These plants do not produce so freely if sown much too soon, and allowed to become stunted in the seed-bed.

CAULIFLOWERS.—The cottager should beg a couple of scores of plants from some good-natured gardener, if he has them to spare; and plant them in rich soil, in the beginning of the month.

RHUBARB.—If any new plantation is requisite it should now be made. Dig very deep, and introduce plenty of manure, and old rotten weeds, &c. The Victoria is, perhaps, still the most profitable kind in the country

We have now touched on most of the crops of the allotment-holder and the cottager; at least, such as should be thought of in the month of March.

We now conclude our labours again until April, when we hope to enter more widely into the subject of allotment farming or gardening: a subject which will, as we think, be much more engrossing than at present; the permanent welfare of the kingdom depends much more on an industrious, contented, and well-ordered peasantry, than some persons imagine. In the mean time we implore the allotment-holder and cottager to persevere, and to keep his eyes open. Much is to be learned from sound practice; something from a habit of reading: the latter tending to dissipate those prejudices which are too apt to lurk in the minds of unlearned men who do not travel far from home.

THE POULTRY-KEEPER'S CALENDAR.

MARCH.

By Martin Doyle, Author of "Hints to Small Farmers," &c.

FOWLS.—We have been reproached for our disapproval of the game breed by persons who prefer them to any other, and maintain that they are much less quarrelsome than they are generally reported to be; in fact, that their combats are the mere effects of exuberant spirits exciting them to play with each other in a manner which, though apparently serious, is as harmless as the tilting matches of other sportive animals. Our opinion, however, still is that game fowls are troublesome in any poultry-yard where a constant police establishment is not kept; for, though their inferiority of size might lead us to suppose they would not dare to bully fowls of larger size, their indomitable spirit leads them to quarrel with birds of much larger size, and their activity and muscular strength render them dangerous, if not invincible adversaries. Besides, even if they had no rival races to contend with, they would fight among themselves; and not always for *fun*. Even the dispiriting operation of caponizing (perhaps, however imperfectly performed) has proved ineffectual to curb the pugnacity of a game cock; one so treated proved to be the most troublesome bird in a poultry-yard.

There are two or three varieties of the game fowl in England, distinguished by some difference of size, the greater or lesser activity of form.

"The game cock," says Mr. Dixon, "approaches nearer to the Malay and Pheasant Malay than to any other variety of fowl. There are the white-legged, the yellow-legged, and the leaden, or black-legged, game fowl. These equally vary in the colour of their plumage. The hens also differ; and, as some breeders think the darkest to be of the purest blood, a deep brown hen, with dark legs and small leaden comb, is thought to be the model bird; but in all game hens I think the tail will be found to be large, vertical, fan-like, and well carried over the back,—a distinction which continues to be very apparent in the first cross with any other breed. The flesh, even of the yellow-legged, yellow-skinned breed, is justly in high repute. Their eggs, also, are highly prized for the table; they are comparatively small, contain a somewhat larger proportion of yolk, are taper, unequally elliptic, and mostly, though not always, tinged with buff."

The game breed is an importation from India, where the fighting of cocks has been an amusement and a vice from time immemorial.

Chickens.—A few cottagers now have chickens pretty forward. One of our nearest neighbours had a brood of nine out on the 15th of January; the care which she took of them in the long continued season of frost and snow has succeeded, and she will now receive her reward in a high price for the brood.

Eggs for Hatching.—Collect the eggs which are to be set, and store them in bran, in a warm place not exposed to light. It need hardly be remarked, that eggs for hatching should not be soaked in lime-water, nor greased, nor in any way rendered air-proof. It is obvious that no eggs are fertile where a cock has not been associated with females; and almost every one knows that what are called cock's eggs (which are abortive female ones) are good for nothing. Endeavour to procure eggs (of whatever description of domestic poultry) of the best breeds, even though they be comparatively dear; this first cost will be amply repaid in the future produce; parsimony in this respect may prove a very false economy in the end. The fresher that eggs for setting are the better; we lost a brood of chickens last year from having kept the eggs too long; the vital principle within was so feeble that, though the hen sat steadily, and two or three chickens came to life, they died, with a single exception, in the shell, from want of strength to break from it.

A great deal of curious, though rather nonsensical, matter has been published about the shape of an egg as indicating the sex of the bird that will issue from it. M. Tarmentier, a celebrated French naturalist, who has dived very deeply into the philosophy of eggs, has given this test for ascertaining what the sex of the chick will be:—"examine the eggs by holding them between the eye and a candle, and if the vacancy caused by the air-bag at the blunt end of the egg appear to be a little on one side, it will produce a hen; if this vacancy be exactly in the centre, it will produce a cock." Mr. Dixon refutes this commonly received notion, handed down from one writer to another, by informing us that we shall find very few eggs in which the air bubble is in the centre, and that, consequently, cock birds would be very rare if the above theory were true, whereas in many broods there is a considerable majority of cocks born. He also points out the error of supposing that small round eggs produce female, and very oblong ones male birds, by the simple statement of the fact that, "the hen who lays one round egg will continue to lay all her eggs round, and the hen that lays one oblong will lay all oblong; consequently, one hen would be the unceasing mother of cocks, and another must remain the perpetual producer of pullets, which is absurd, as daily experience proves."

Those foolish notions have been handed down to us from the ancient Greeks and Romans, among other popular errors; and have no more foundation in fact than Gulliver's pleasant narrative of the great wars between two nations concerning the *end* at which an egg ought to be *broken*.

As a general rule, choose the largest, roundest, heaviest, and freshest eggs; and handle them gently for fear of disturbing the yolk.

The number of eggs to be provided for hen fowls, turkeys, geese, and ducks, respectively, to hatch, may be thus estimated:—

For large Dorking Hens, from 11 to 13 of her own eggs; say nine of the Spanish or Malay kinds.

For Turkeys, from 13 to 15 of her own.

For Geese, about 15 of her own.

For Ducks, from seven to nine of her own.

Their instincts generally lead birds to lay without interruption until they have enough for hatching. If the desire of hatching be not indulged they resume their laying, after some interruption, for a longer or shorter time, according to their nature. Some kinds of poultry lay every day for a period, others every second day.

The nests for each laying bird (of any sort of domestic poultry) should be reserved for her particular use as much as possible; and the peculiar disposition of a bird—such as the pea-fowl and the turkey—to lay secretly, should be gratified by giving her a nest where she may lay in privacy. This instinct she is given to defeat the savage efforts of the male to discover and smash her eggs.

Laying Ducks require attention in another way; they drop their eggs in out-of-the-way places from mere carelessness—by the margin of a pond or ditch, in the grass, in a shrubbery, anywhere; and as they do not give warning of their having laid, and lay at night, they require to be carefully put up in the evening, or, at least, attended to until they have established their laying place in a desirable nest. The duck rarely lays more than eight or nine eggs (which are her highest complement for hatching), until she desires to hatch. If her eggs are to be hatched by a hen—which is common, as she herself is an inferior hatcher—she may go on laying for a long time.

Ducks are useful companions now to the cottager digging his field or garden; they rid the ground of earth-worms and grubs, and are very active in the morning and evening in gobbling up snails and slugs.

Geese are now laying, after giving preparatory warning by picking up straws for the formation of a nest. Wherever she lays her first egg she will lay the others; provide a proper nest, then, in the first instance.

BEE-KEEPER'S CALENDAR.—March.

By J. H. Payne, Esq., Author of "The Bee-Keeper's Guide," &c.

Our little favourites, by the appearance of the early spring flowers, and the return of milder weather, are again aroused into life and activity; but it must always be remembered that the most trying time for them is from the middle of February to the end of March; for none but well-stored stocks can bear up against the great inequality betwixt the internal demand and the external supply of this period. The winter, to be sure, has been very cold, which is generally in their favour; for but little, if any, evil is to be apprehended from a cold winter, though much may arise from a mild one; as, during the latter, the stock of honey is often exhausted, from its inducing the bees to be in action, without affording them any resources beyond their own stores. In confirmation of this, an apiarian friend, in writing to me a few days ago, says, that his *suspended* hive has consumed only two ounces of honey for the last five weeks. This hive hangs upon a balance, and, by some very ingenious machinery, gives the increase, or decrease, of its stores every hour; and not only gives them, but *registers* them also, upon a sheet of ruled paper, which is from time to time supplied. This arrangement must afford a continual source of amusement and interest, and more especially so during the honey-gathering season.

Diseases.—This is the month in which dysentery and other disorders make their appearance amongst the bees; but cleanliness and timely supplies of food are the best remedies, and which I have always found to prevent it.

Spring feeding, however, must be done sparingly; for if the bees have had a sufficient winter's supply, feeding will only be required upon a small scale—it being chiefly intended as a stimulant to promote early breeding.

The importance of feeding is very great; for langour and death, says Dr. Bevan, is less frequently to be ascribed to disease than to the want of timely food.

My bees were liberated from a three weeks' confinement on the 25th of January, on which day the snow disappeared, and the thermometer rose from 32° to 47°. They were all in health and vigour, and appeared to enjoy the change exceedingly; but on the 1st of February it became still milder, for the thermometer, in the absence of sun, stood at 54° through the day, which brought them out even in greater numbers.

WATER.—On the 4th and 5th of February they were searching for water wherever they could find it (for I had not then filled their troughs), and carrying it into their hives most industriously—a certain proof this, that breeding had commenced. Upon seeing them so busily seeking it, I threw down a large wet sponge, which was immediately covered with them, and remained so till quite late in the day; and it has continued to be a favourite resort for them every fine day since. Dr. Bevan recommends salt and water being set for them during the early part of the breeding season (a teaspoonful of salt to a pint of water), in shallow pans, half filled with pebbles. I have always given them water only, which they carry home in large quantities; but I have now given them both, and, perhaps, some apiarian friend will do the same, and give me the result as to which they give the preference. Keys, and some other apiarians, thought that bees were not fond of salt.

BUYING STOCKS.—March is a good time for purchasing stocks for those who are desirous to become bee-keepers; and sufficient encouragement I think was held out in my last calendar, to induce many persons to engage in it; for their cultivation, if properly managed, is attended with very considerable advantage, much more, indeed, than what is generally supposed; and would not be, by any means, a contemptible consideration with even those who may fill a superior rank in the rural population of our country.

OUR VILLAGE WALKS.

(No. 21.)

ONE of the most delicious moments of the early spring, is that in which we first open the glass-door to enjoy the sudden warmth that is imparted by a south or west wind, after the nipping gusts of winter. This year it was peculiarly delightful, because the long continuance of snow, and cold, and cloudiness had kept us from the garden for an unusually long period, and the transition was quite unlooked for. The sun shone out so brightly that we felt his beams quite warm, as we stood on the step; the old cedar was sparkling with drops that hung from every twig, and, although the air was perfectly still, they kept falling to the ground at intervals, like diamonds. There was a joyousness in the few notes that came from the boughs—sounds that had long been strangers greeted our ears; and we saw some gnats flitting about in the sunshine, as if summer itself was come. In spite of the wet that soaked the earth, and the certainty of frosts still to come, it was impossible to resist beginning to garden, with all these sights and sounds around us, and to hunt for the early bulbs. There they were; raising their sharp green heads, and speaking of Him whose unwearied hand is again arousing the refreshed earth, and bidding it put on all its "tracerie" to gladden and sustain mankind. The snowdrop, with its drooping bell, is already in full flower; and the bold crocus, with its erect, undaunted attitude, and glittering cup, will soon be at its side.

The fields and lanes are now becoming full of interest. Every hedge and bank thicken daily with springing herbs and plants; all possessing some beauty or some goodness, and drawing us away from our books and work to see a more glorious work, and read a more wonderful book, than the hand or mind of man has ever made! The winter through which we have just passed seems nothing to us; it *was* very cold—it *was* very dark and comfortless certainly—but it is gone—past and gone: we are among fields, and flowers, and cheering sunshine now; and all that is gone by is forgotten. How soon can the same Almighty Hand work changes equally striking in the life of man! How soon can the dark days of adversity, and the bitter trials that cloud and sadden our own hearts, be succeeded by joy and gladness, while all that has gone before, in wisdom and much mercy, seems but as a dream when one awaketh! When the greatest change of all comes—when the "dead in Christ" have put on incorruption—the brightest earthly course will then be but a dim shadow—dim, and remembered no more!

The crimson stalks and shoots of the Herb Robert, or Robert-leaved Cranesbill, are now beginning to decorate the hedges, and attract the eye. What a wonderful instance of Divine love is displayed in this simple, but valuable wild plant, and in some others whose virtues are the same, but especially in this and the Tutsan—sometimes called Park leaves. These plants have remarkable efficacy in stopping the effusion of blood. The tender young leaves of the Tutsan, bruised and bound upon a wound, stop the hemorrhage, and perform a speedy cure. It is the most valuable plant known for this purpose, and should be cherished in every garden; but it does not grow so commonly in the woods and hedges as the Herb Robert, which is next in value, both for inward and outward hemorrhages. The plant is to be taken and dried for use (roots and all); and may either be taken as a powder or in decoction. It is a most excellent astringent. These two remarkable plants possess the property of becoming blood-red in autumn, and have a crimson tinge at all times; thus marking their own peculiar virtue, and glowing conspicuously among the quiet green of Nature's usual dress. It is said that all plants with crimson leaves or stems are valuable in similar cases, but these two particular herbs possess unwonted efficacy. When we mark them among the various and beautiful flowers of the hedgerow, let us remember the care and providence of Him who has enriched their hues to catch the eye, and lead the sufferer to their healing leaves!

The blossoms of spring will not yet open; but it is delightful to watch the daily progress of advancing vegetation, and to feel that in a few short weeks all will be bright and gay. How refreshing it must be to the little birds, after the scarcity of the past winter, to feast on the cool moist groundsel—that weed so obnoxious to the neat gardener, but so beautiful in the sight of birds. It is now green and tender, and springing up in abundance on every side. I have learned to love the groundsel for the sake of my own canary, whose fondness for it is extreme: the moment he espies it in my hand, he hops and chirps in ecstacy; and appears to relish the young leaves as much as he does the flowers. This plant softens water in a very remarkable manner, when it is poured upon it in a boiling state; and the water then is a very useful application to the skin when irritated by cold in winter. For chapped hands—from which many persons suffer greatly in cold weather—it would, no doubt, prove a relief; and a more simple remedy, or one of easier attainment, can scarcely offer itself. The juice of this herb is excellent for diseases of the skin, used as an outward application; and one of the species which are natives of Britain, called botanically the *Senecio Sarracenicus*, was used by the Saracens for the healing of wounds. There are nine species of this plant indigenous to our country; but there are five hundred and ninety-six species known to botanists, of which some are very beautiful and cultivated as garden-flowers. The groundsel grows wildly now throughout almost every land, but originally it flourished only in some parts of Europe, and the southern parts of Asia and Africa, where, on the sandy plains, their bright colours resemble those of our border varieties. It is said that wherever colonists break up and cultivate the soil, these flowers spring up to greet them. What a pang! what a thrill of *home* must shoot through the heart of a settler, when among the new and strange vegetation of his adopted land, the well-known weed of his English garden rises before him! We think nothing of it now; we root it up and throw it away; but in America, in Australia, what language would its soft, downy blossoms utter! How it would breathe of the fields—the hedges of England; of her cottages, and her smiling gardens—dear, as they must ever be, to her sons, amid all their growing wealth in distant climes. Insignificant as we think this weed, it has its uses and its language. It beautifies the burning plains of Africa with rich and glowing colours; it climbs the rugged steeps of the storm-beaten Andes, and blooms in desolate places where no tree can live, where hurricanes perpetually thunder, and almost on the confines of eternal snows. What varied scenes—what terrible sights and sounds, and seasons, this quiet-looking flower can brave—seasons that wither and uproot the trees of the wood! What a lesson to man's heart! The pitiless blast sweeps over the lowly plant, and leaves it unharmed; but the lofty tree cannot sustain its fury, and shrinks away to the sheltered valley below its reach. Let this pretty, unpresuming weed speak before we throw it away. It tells us that storms and trials pass harmlessly over the head of him who is the follower of a "meek and lowly" Master—who dwells quietly beneath the shadow of the everlasting Rock, in that "hiding-place" which screens him from every blast as it rushes by. "The loftiness of man shall be bowed down, and the haughtiness of men shall be made low;" but the humble spirit shall stand unshaken, and unmoved, amid all the troubled tossings of this weary world.

FUCHSIA FULGENS.

Without the least intention to invade the province of Mr. Beaton, I yet deem it necessary to call the attention of your readers to a very useful but much-neglected plant for ornamenting the flower-garden, the Fuchsia Fulgens, which I seldom see grown to the extent I think it deserves; and judging its management may not be sufficiently known to be the cause of its almost entire absence in some rather extensive collections of bedding-out plants, I herewith trouble you with the following particulars:—

It is well known this fuchsia differs from all the others both in appearance and habit, being more truly deciduous than the hybrid varieties so much in vogue, and also possessing a thick fleshy tuberous root, which, in a matured plant, is capable of storing away sufficient food on which to live during the winter, as also to develope the plant of the ensuing spring. Now, it is well-known that cuttings taken off in the latter part of summer are incapable of forming such substantial roots, consequently in most cases they perish; hence, I presume that many cultivators may have discarded it as not being an easy propagating plant, more especially as, also, cuttings struck in spring do not succeed well planted out that season; with these disadvantages against it, no wonder but some might dismiss it. But there is yet another way in which plants may be had in great abundance, and without much trouble, I mean by seeds; no fuchsia seeds more plentifully, and the pulpy pods or seeds gathered when ripe, which is known by their falling, and put away in a saucer, or anything where they do not lie too thick, require only to be kept so until March, when they may be rubbed in pieces, as well as they can be separated, and sown in pots or pans in March. I would not advise the seed to be disturbed before then; and even then let the pulpy material still adhere to it, only separate it so as too many seeds may not be left at one place. If the pots or pans be placed in a hotbed the young plants will come up in about three weeks; and, if the seed has been good, in great abundance. A 6-inch pot will contain as many seedlings as the amateur will probably want. After they have got their rough leaves they may be pricked out into pans. I generally use a mixture of loam and leaf-mould with a little sand, in which they grow quickly. And when they have pretty nearly filled the pan with roots, they may be potted singly into three-inch pots, and put anywhere under glass; or if such accommodation cannot be had, they do very well out-doors in June, and the whole of the summer months. You must then shift them into 48's pots, which will be all that I should advise for those intended for bedding-out plants the following year; a few may be put in larger pots, and some will, doubtless, flower in the autumn, but the bulk I advise keeping in pots not too large: they occupy less room in winter, and their roots get well ripened by being cramped, and the plant ceasing growing early in the summer. The plants are not at all delicate; on the contrary, I know of nothing more easy to rear, and am not sure but plants might be raised in pans out of doors, and good plants obtained by the autumn; but when a hotbed can be had, it is better to urge the seedlings forward a little way first. In the summer they can be placed anywhere, so that they can get their due share of water; and if in the full sun so much the better, as they will ripen their growth earlier; which if they do not do before the autumn rains set in it is better to lay them on their side; and about the time that other greenhouse plants are taken in, it will be found that they have lost nearly all their leaves, and made a good bushy plant a foot or eighteen inches high, and the wood all ripened, except the tips, which, however, had better remain on until spring. In wintering them, I usually set mine under the stage of the greenhouse; but they are very accommodating—any place safe from frost will do very well for them until spring, when, if they could be excited a little in warmth before they are planted out so much the better. One great advantage they have over most things that are planted out, if dry weather follows immediately after, which it often does in June, is that they will be found to withstand it; the well-established root of the former year supports them under such a temporary trial, and they continue to grow and flower amongst the earliest and with the latest of the season, until frost cuts them off. It is somewhat strange that this fuchsia will not shoot up again the following spring like the other kinds; I have frequently tried them; and although the fleshy tuberous root is quite sound, in spring I never saw one shoot up again, which makes it necessary to prepare plants every year. Some people have tried taking up the old roots, and storing them away like dahlias, and which I have sometimes done; but it is seldom that the wood is sufficiently ripened to keep the winter, and the roots are often more fibrous than tuberous, that many of them are apt to perish, and those remaining do not make such nice plants as seedlings. Yet it may be adopted where the plants have been growing on ground not too rich. I may remark, that I have perceived very little variation in seedlings: they usually come as much like the parent as they can be.

S. N. V.

EXTRACTS FROM CORRESPONDENCE.

Stupifying Bees with Ether—Feeding Bees.—I have seen, upon several occasions, inquiries in your paper as to the stupefaction of bees by chloroform. I have never tried chloroform, but I have tried ether: I give you the results.

In the August of 1847, I purchased sixpennyworth of pure and good ether; and having poured a portion of it upon a piece of sponge, I placed it on the floor-board of the hive, and stopped up the entrances to prevent the admission of fresh air. At the expiration of a quarter-of-an-hour I lifted the hive, and found that the fumes of the ether had taken little, I may say no, effect: I do not think more than half-a-dozen bees were under its influence. I then gave up the trial till another day. My next attempt was with a piece of sponge placed in a funnel, the tube of which was turned in a horizontal direction. The end of the funnel was placed inside the hive; and through the tube I attempted to blow, to make the fumes of the ether ascend into the hive, but my success was little greater than upon my first attempt. My next attempt was made by placing the ether in a small but wider necked bottle, through the cork of which I passed two tubes, one of which was made to pass into the mouth of the hive, the other I blew through. I succeeded in this manner—*not* in stupifying the bees, but in rendering them so quiet that they allowed me to take away several pounds of honey, without attempting to sting me, although I had numbers of them crawling all over me. The bees recovered in a short time, and swarmed in 1848, but died in the very bad *bee* spring of 1849. I do not recommend any of your readers to have recourse to ether in stupifying bees, not only on the score of expense, but also because it is tedious, and by no means a certain process. I now make use of a little fungus when I want to stupify my bees; and I last year put several stocks to sleep, with the greatest ease, with a little fungus and a common tobacco pipe. I have just had two hives made upon the plan recommended by you in vol. I., p. 269, and I have little doubt but they will answer well. I think straw far the best material for hives. I have tried wooden boxes upon several occasions, and till this year (and it is now only February) I have never succeeded in keeping my bees alive in *wood* during the winter; frost or damp has always hitherto beaten me. In the autumn of 1849, however, I determined to try encasing my box in dried fern, and I believe that the experiment will prove successful; at any rate, upon cleaning the floor-board, about ten days ago, my hive was well and flourishing.

I am rather surprised that Mr. Payne does not lay greater stress upon the aspect required for bees during the winter months—viz., a due north aspect.

If any of your readers will take two hives in the second week of November, of equal weight, and give one a N., and the other a S. or S.E. aspect, and then weigh them again on the first of March, I think he will find the hive either on S. or S.E. aspect will have consumed twice as much as the sister hive on the N. aspect; and I think he will also find that, as a general rule, the hive wintered in a northern aspect will swarm from 10 days to a fortnight sooner than that upon the S. or S.E.

I read with much interest a letter in your 67th number, from a "Country Curate." I am very anxious to know *how* your correspondent administered the food which he supplied to the two swarms united in August? Was it given at the top of the hive, or on the floor-boards? and in what vessel?—S. E.

[In answer to the concluding query, we have been obliged by the following from a "Country Curate":—]

"For the last year or two I have invariably supplied my bees from the *top* of the hive, in preference to the old plan from the bottom. I have tried feeding them in a drawer beneath the hive; and, by a contrivance on the principle of the usual water-fountain for bird-cages, have had a supply constantly kept up in a kind of reservoir in the centre of the floor-board; but I am persuaded from experience, that there is nothing like top-feeding, as well because it prevents any annoyance from robber bees, and because of the much greater facility in managing the business; besides which, I can supply them with a much larger quantity of liquid at a time. My box-feeder is not unlike that described in page 136 of your first volume, in principle—though it is made of *zinc* instead of wood; and I should think it would hold a great deal more, besides that the liquid does not soak into the wood.

It is a circular trough or pan, 7 inches in diameter and 2 inches in depth. In the centre of the bottom is pierced a hole (say 2 inches in diameter, to fit over the 2-inch hole at the top of my hives); into this hole a cylindrical tube of zinc is soldered, ascending 1½ inch into the trough, and descending about an inch into the hive (the latter may be better dispensed with, I now think). To one side of the trough a funnel-like piece of zinc is adapted, through which the liquid is poured from time to time, when needed; a few holes being pierced at the *base* of it, so that the liquid shall pass *under* the plate upon which the bees feed. This plate is made of perforated zinc, and is buoyed up by floats of cork of sufficient thickness to keep it *always* above the liquid. Of course, it falls and rises with the latter, but cannot rise higher than the level of the cylindrical tube, up which the bees ascend to feed. To facilitate the ascent of the bees, a piece of wire is wound spirally about its inner side, from top to bottom. The whole is covered by a square or octagonal pane of glass. As the tube rises only 1½ inch in the trough, there is left the ample space of ½ an inch between it and the glass for the bees to pass freely in and out of the hive. Apiarians have objected to zinc, because they say the bees are apt to get chilled; but I have not found it so. I do not however feed in winter."

THE TREE ONION.—Many cottagers round my neighbourhood cultivate the tree onion, a bulb bearing onion, and the produce arising therefrom is really surprising; in fact, in my opinion, it quite supersedes the system of sowing seed of the common varieties. The bulbs, when full grown, are large and handsome; they likewise keep better, not having that tendency to start (or, in other words, they do not show any signs of permature growth) at present. The flavour also is decidedly milder than the common sorts in cultivation. The manner of cultivation is as follows:—Early in spring they prepare a patch of ground, by digging and slightly manuring with good rotten dung, taking care not to bury the dung more than three inches; they then take the small bulbs and plant them eight inches apart in the row, and about ten inches from row to row; the planting to be conducted on the quincunx order. Nothing more is required, but keeping the weeds down, and watering with weak manure water, in dry weather. They allow the bulbs to get quite ripe before they gather the crop. It is astonishing what crops they house; and the produce so large and fine that a stranger would not credit it without ocular demonstration. The bulbs formed on the top of the stalk (last year of course) are the seed, or root, to be planted now; these will produce very fine onions for the table. A portion of these full-grown onions must be again planted in the following spring; they will throw up stalks and produce seed, or bulbs, for another year in abundance.—T. LONGHURST.

COVERING THE ROOTS OF FORCED VINES.—The following may not be worth troubling you with:—Hitherto there seem difficulties attending vine-forcing, the roots of the vines being outside. Fermenting material (unprotected) is troublesome and expensive, for unless protected from heavy rains, it is soon reduced to a soddened state of decomposition, and unless renewed about four times in so many months we had better be without it. We have a plan of our own, as follows:—We begin to force at Christmas, but six or seven weeks before that time we choose a dry sunny day, cover the border with some fresh leaves, and, if needs be, add some loose litter at the front to give a good slope, then cover the whole with thatched frames; this remains until a fortnight after we have begun to excite the vines in-doors; after which, the top frames are removed, and just enough material is added to cause a slight fermentation; not to warm the roots, but to warm the wall into which the stems rise, in a deep groove, and shut in with a board made to fit. This done, the shutters are replaced, one at a time, as the fermenting material is added. This remains till after the buds are fairly pushed out of their sockets, then we apply fermenting matter over the border 12 feet wide, and by the time the warmth has penetrated to the roots, the leaves are expanding. We do not agree with the principle laid down of stimulating the roots until after the development of the leaves. In the process of well shaking to pieces the fermenting matter, when we have done a piece wide enough, we place the thatched frames, not treading on it as we go. This done we are safe for the next eight weeks to come: and only want to turn it over once in the season. We think these thatched frames so effectual 1st, in keeping the winds from lowering the temperature; 2nd, from keeping off heavy rains from soddening the material; 3rd, for looking neat; that we wish for nothing better. Our frames are made from egg-boxes, five feet square, being made originally to be covered with asphalte; but that soon became useless. I think the best size would be six feet by four; then, by placing the thatch a foot a-head of the upper frame, and a foot behind the lower one, it would cover a breadth of 14 feet. Our border was constructed, and vines planted in April, 1843, after Mr. Roberts' plan (carrion excepted). The vines are extremely fruitful; they have borne four heavy crops and two (first) light ones; and, by beginning earlier every year, we had some ripe last year in May, with the same prospect this.—W. BURGESS, *Golder's-green, Hendon.*

POTATO PLANTING.—Shortly after the commencement of your publication, you copied from *The Gardener's Chronicle* a communication I had made of the result of my potato planting for that season; having followed up my plan, I now forward particulars of my crop for 1849, which you can insert, if you consider it likely to be useful to any of your subscribers.

No.	Planted.	Sorts.	Dug.	Result.
	1848.		1849.	
1	26 Oct.	Clear Reds.	29 Sept.	Sound and good.
2	13 Dec.	ditto.	24 Sept.	ditto.
3	,,	Mottled Red & White.	,,	ditto.
4	,,	Small Red Kidney.	11 Oct.	ditto.
5	20 Dec.	Early White.	29 Sept.	Part diseased, 5 p. c.
	1849.			
6	15 Jan.	Clear Reds, as No. 1.	24 Sept.	Sound and good.
7	10 Feb.	Early White.	23 Aug.	Part diseased, 5 p. c.
8	,,	Reds and Mottled.	22 Sept.	Sound and good.
9	16 Feb.	White Roughs.	16 Aug.	ditto.
10	24 Mar.	Lot various.	11 Oct.	ditto.

February 2nd.—Not a potato decayed since taken up.

All of these we planted whole (rather larger than walnuts) in a good old, rather light, and well-worked garden soil, and all without manure (except No. 10); about half had a few coal-ashes thrown in when planted, but there was little or no difference in the produce. The lot No. 10 was different sorts that had been left, and were planted in a spare piece of ground in the same garden, which happened to have been previously manured from the heap.

About the end of the first week in August, symptoms of "the disease" began to shew,—the leaves turned black and the haulm blotched. On the 20th the greater part of the haulm was pulled away, but by keeping the feet close on the ridge, the tubers were left in the ground, whilst a sprinkling here and there were left with the haulm untouched. They were afterwards dug at the dates marked in the list, but, though the haulm previously left was then entirely decayed, I could perceive no difference between the roots there and where it had been removed. Nos. 5 and 6, which were slightly touched, were an early sort, were quite full grown, and I am persuaded that, had they been taken up a few days sooner, would have been perfectly sound.

But the best of my communication is to come, and I hope it will be found to answer as well with our cottage friends as it has with me; I allude to a recommendation in some of your former numbers that of pulling away in the spring all but *two or three shoots from each plant*;[*] the result with me has been that instead of having, as I have been accustomed, *two-thirds too small for use*, I have, this last season, *scarcely a sufficient number of small to serve for seed.* Can you, or any of your correspondents, give, from *their own experience*, the result of earthing or

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[*] I think it probable that the light and air being admitted by thinning, tends to check the disease.

not earthing up? I have not tried the latter.—M. E. A., *near Hastings.*

COCHIN-CHINA FOWLS.—For the information of your correspondent, Mr. Mugridge (page 246), and others who may be interested in the above breed of fowls, I beg to offer my ideas upon the various properties as they have come under my notice. None of mine have ever had five toes; the colour of the legs always yellow; and, I should say, the hen with blue legs, mentioned in Mr. Mugridge's letter, could not be at all the correct breed. I have a young cock-bird hatched last March, who stands upwards of two feet in height, and I do not consider him full grown. Your correspondent mentioning the circumstance of having bought the eggs of a dealer, of the name of "Baker," has been, I confess, an inducement to answer these queries, to the best of my ideas, of the breed. I bought a cock and hen of him about two years since, for which I paid him £2 10s., and when I offered some of the progeny of the same fowls to him for sale, he pronounced them "spurious." Such an answer somewhat surprised me, more especially as I kept no other breed. I expressed my doubts to Baker, in the first instance, of the stock being "pure," to which he had not the courtesy to reply.—H. YOUELL, *Great Yarmouth.*

DRAINING.—My garden is situated on a flat, with no fall on either side for draining; and I have been sorely puzzled to drain my flower-borders, the soil being so wet that I could get no flowers to bloom as they ought; at last I hit on the following plan, which has answered exceedingly well:—I had all the soil taken out to the depth of two feet, and then placed on the bottom brick-bats and large stones; these were put for the purpose of supporting a rough flooring of coarse slates, leaving under them a clear space of about four to five inches; thus, all the superfluous water drained through the interstices of the stones, and my beds are always dry. You will readily perceive that no water could lodge in the borders until the four or five inches under the slates were *full of water*, which was next to an impossibility. The slates were allowed to overlap pretty much, to prevent the soil getting through. Another benefit resulted from this, namely, having all my borders about 18 inches deep, with a good slate bottom, prevented the roots of the larger plants from penetrating to the subsoil.—J. W. FLAMANK, *Tavistock.*

TO CONVERT STANDARD INTO PILLAR ROSES.—I once overheard a horsedealer say to a person who returned a horse upon his hands, "It's all right, the horse has not yet found his proper berth." It is so with some descriptions of roses, when they are budded upon stocks for standards; such, for instance, as the hybrid Chinas. There are many of them so rampant in their growth, and impatient of pruning, that you must either sacrifice bloom to form, or form to bloom; in fact, they are not in their proper berth; and a good plan is to take them up, prepare afresh the place where they stood, or any other, and insert an iron rod in the centre of it, say eight feet high. Dig a trench from this rod the length of the stock or stem, lay the plant along it, and fasten down with a peg the roots at one end, and the collar at the other, adjusting the head at the bottom of the rod, so that the shoots stand upright, and are just covered by the soil; then fill in. If this be done in the autumn, and the branches are tied up to the rod till the spring, and pruned back to two or three good eyes, they will break strong, and in the following season form a noble plant. I served a Malton, or Fulgens rose thus some years since, and it became a perfect pyramid, blooming from top to bottom.—S. P., *Rushmere.*

BEES.—I have upon my stand a wooden bee-box, about twice the size of a common straw-hive; the top and bottom take off. It gave me two enormous swarms last summer, and weighed at the commencement of winter about 50 ℔. It has not been touched for the last seven years, and wants examining; besides which, I wish to make a square hole at the top, to set on a bell-glass. I do not like to destroy the bees, and simply desire to remove them to a fresh hive. By doing this in the spring, will not the young brood be injured? and if left till the autumn, may it not prevent their obtaining a proper winter supply? Can any of your apiarian friends inform me how to act?

FATTENING PIGS.—A widow lady, who occupies a farm near me, engaged, a few months since, a new bailiff. "How is he likely to answer?" I asked. "Well," she replied, "he fattened me four hogs in about half the time I ever had them fattened before." "By what means?" "Simply," she observed, "by giving them their food in a drier state." On conversing with the bailiff a few days after, he said "it was a great error to give pigs, when put up for fatting, so much liquid food; it scoured them, and that if supplied drier, and in smaller quantities and oftener, they would fatten as fast again."—S. P., *Rushmere.*

GREENHOUSE COVERINGS.—Speaking of protective coverings for greenhouses, pits, and frames, I will advance a little beyond what Mr. Fish has stated upon the subject, and will endeavour to show the practicability of preserving from injury, by frost, plants in conservatories and greenhouses without additional heat, and without those unsightly materials—asphalte, felt, Russia matting, &c. But these remarks chiefly apply to those of ample means, where external appearances are a great consideration, and expense a minor one. We all know that where horticultural buildings are seen from the family residence, which they mostly are, that to have during an inclement season a conservatory covered over with matting, &c., or the plants literally baked within, is not only highly objectionable, as being offensive to the sight, but bad in practice; being detrimental to the plants, either from too high a temperature, or from darkness, when, at this season, they require all the light they can possibly have; but, of course, out of two evils we always choose the least. Now, in my opinion, rough plate glass, from three-sixteenths to three-eighths thick, which effectually prevents the sun's rays from scorching the leaves of plants, would as effectually keep out frost; but then it is opaque, and consequently, in the winter time, a deal of light would be lost. The plan I recommended to be adopted is one which I have seen tried with good success with cold pits and frames—that of double glass. Now, the principle upon which this acts is one of science, and found to be good in practice; but, before I go any farther, let me explain how it is to be applied: let the ridge of the house stand up above the ordinary level—about six or eight inches—with weather boards attached, and the rafters to be of sufficient thickness to correspond with the ridge, to allow of grooves being made in them for the sashes to slide in; and when the sashes are all drawn up close to the ridge under the weather boards, there shall be a clear space of three or four inches between the inner and outer glass; the lower ends to be fitted with fillets of wood, to exclude the external air, for upon this depends the chief point of success. The same non-conducting medium may be presented to the front lights of the house, by having glazed shutters made to slide in grooves, and the ends of the house by erecting lobbies, which could be made ornamental, and available for those plants which only require slight protection. Mr. Errington (in another horticultural work) speaks of this principle, and recommends its adoption in the construction of pits, &c., by the building of hollow walls, which, he says, "are well known non-conductors of heat." It has been stated by practical men, that single glass will keep off five degrees of frost; but, for example, I will say four degrees; that is to say, that a thermometer being placed inside a close frame, with a single glazed light, and another one placed outside, if the mercury stood at 28 degrees, it would only be 32 within the frame. Thus we find, in the adoption of double glass, a resistive power of 12 degrees is attained. And supposing that a steady temperature of 40 or 45 degrees was maintained in the house, there could not be any fear of injury from frost; and whether by flue or hot-water pipes, a considerable saving in the quantity of fuel would be effected; and the lower the temperature of the house, compatible with the well-doing of the plants, the better it is for them.

In conjunction with the above, I will now adduce the theory of another subject, namely, that a question has arisen in my mind, whether the application of double glass would not be effectual in preventing the sun's rays from scorching the leaves of plants, upon the same principle that the rays of light are concentrated and dispersed in an optical instrument; and although common flat window glass is not to be supposed to have the same power, and produce the same results as the concave and convex lens of a telescope, still it does so in a small degree; for what is termed flat glass is not so—and I think I may say there is none flat but plate, which is ground and polished, and that possesses a large radiating and reflective power—and according to the convexity or concavity of the common window glass, so the sun's rays are either concentrated or expanded; and when brought to a focus, the result is the blistering of leaves.

I hope I shall see this subject taken up, and expatiated upon, by some person better qualified than myself.

A few words to amateurs and cottagers respecting protective materials with which to cover their pits and frames. Canvass, felt, hurdles, matting, &c., are all more or less good as a covering in inclement weather, but there are some disadvantages attending them; for instance, sometimes when they are drawn off in the morning, after rain or snow, they will be frozen by the time you want to cover up again, which, if you do in a hurry, and they happen to be in a crumpled, uneven state, away goes the glass. The best covering is half-inch boards cut to the length of the frame, and either nailed together by two cross pieces, or laid on one after the other. Here we have a non-conducting material, presenting an even surface, and an equalized restrictive power, which our ordinary frosts will not penetrate; it is cleanly, and with care will last for years. At some of the timber-yards about London, where they cut boards into different lengths to suit their customers, the odd lengths that are left may be bought very reasonable.

Fuchias, geraniums, mimulus, and verbenas, have done exceedingly well this winter in cold frames, well lined round with litter, both under the boarded covering, and the double glass system.

G. Harker, *Ball's Pond, Islington.*

Night-Soil.—The valuable properties of night-soil have for a long time been known to the experienced gardener, who has not hesitated to avail himself of any opportunity that might occur of getting this excellent manure into his possession. But the cottager, to whom any addition to his refuse-heap is of the utmost importance, usually knows very little of the real value of this description of manure, of the method of applying it to the land, or of the best means of securing it from loss or damage in the course of its formation. Some years ago there was a prejudice against its use, and, if used at all, it was always allowed to lie at least a year in the corner of a field, with no other protection from the weather than a thin coating of cinders. In this way, no inconsiderable portion of its valuable gases were evolved. But a practice still prevails, almost universally, I suppose, of diluting it daily, while its production is going on, with every sort of liquid refuse from the house. Now, what I would recommend to the cottager is this:—Let him pour the soapsuds, and all other slops, upon that part of his garden that does not happen to be occupied with crops. Such liquid is always best applied at once. But if there be no ground vacant, then let them be thrown over the refuse heap. A few ashes from the hearth will always stop sufficiently any unhealthy vapour that may arise.

No sort of *liquid* refuse should ever be poured into the soil-pit, and then what accumulates there will be both more valuable and less offensive, for the following reasons:—If the land upon which the cottage stands be a stiff clay, impervious to water, and the ordinary practice be pursued, the daily additions of liquid refuse will soon cause the accumulated mass to be liquid, rendering it exceedingly offensive; and the escape of noxious vapour will both deteriorate the quality of the manure, and render the air around it proportionably unhealthy.

On the other hand, if the subsoil be light and porous, these effects will not follow; but there will be even a greater loss, in consequence of the liquid percolating through the bottom of the pit, and carrying with it much valuable matter. But be the nature of the land what it may, if the pit is supplied by nothing save the calls of nature, there need be no fear of loss by too great evaporation, and its bad consequences to the health of the locality. Weeds, ashes, and even the carcases of rats and other vermin, may be occasionally added with advantage; and the weeds from the garden might be distributed equally between the refuse heap and the soil-pit, putting into the latter all the hard-rooted and most noxious weeds, such as nettles and dandelions. Cobbet, who in his day was no despicable authority, advised the cottager never to burn his weeds. I believe this advice will, in most cases, be found to be good; they may certainly be most profitably disposed of in the way here recommended. In the course of a few years, when the pit will have to discharge its contents, the soil may be applied to the land at once, with perfect safety, for the very obvious reason—that at least seven-eighths of the mass will have been thoroughly decomposed, and the portion that is not so will be so small, that it can do no serious mischief by contact with vegetation. But it is certainly the best plan to mix it with at least half its bulk of earth. Being exceedingly powerful, a little of it goes a great way; and it should be used with caution, since it is too valuable to be wasted. As for the soapsuds and the slops, if always pouring them upon the ground and over the waste heap be objected to, it should be borne in mind that fruit-trees of all descriptions rejoice in having the former applied to the branches as well as to the roots, while the latter poured frequently over a well-dug border in winter, will insure the cottager a fine crop of onions in the following summer—a fact of which every person who cultivates a light dry soil ought to be informed. I have found the artichoke to benefit greatly by the application of slops in spring, immediately after ground about them has been dug.

But if the above arguments fail of gaining the attention of some among those to whom they are principally addressed, there are others whom the force of circumstances will perhaps incline to listen to them. Who has not known instances of wells containing water unfit for use, in consequence of their being too near the neighbouring soil-pit? And what is it that causes the mischief, unless it be the constant dilution that is going on in the latter, by the practice which it has here been my object to condemn? If the cottager can be persuaded of the value of night-soil, he will feel that it is his interest to make the most of it, and he will not think it an unnecessary trouble to add occasionally, from his garden or the road, a small portion of earth; for every substance that tends to "sweeten," tends also to improve the quality of the mass, and to render it more solid. Earth, as Professor Way's experiments have shown, is no bad fixer of ammonia, that valuable gas, the escape of which it is always the object of the cultivator to prevent as much as he can; and it may be well here to advise the cottager, should he wish to reserve a portion of the manure for a future garden operation, to be careful, not only to mix it with earth, but also to add a thick coating of earth at the top, and protect the whole from rain by a good thatching, or other waterproof covering. Rev. C. B.

Planting Potatoes.— Saving of 50 Per Cent.—Presuming all persons to have availed themselves of the opportunity of securing early kinds, the most important consideration which still commands attention, is combining precocity in the cultivation of selected varieties. In preparing sets for potato planting, *single eyes* are undoubtedly the most proper to produce early and fine productions.

Objections to this rule, however, may be fairly urged, as by planting unusually early they are subject to rot; hence, as a preventive, planting *whole* sets have been universally resorted to. In either case, where practicable, we would advise to plant them close, in shallow drills, on a warm border in February, or on a slight hotbed in March, to be transplanted finally in open compartments late in April or early in May. A space of small dimensions will suffice to raise plants for a large garden. Those raised from single eyes, to be transplanted with sets and roots entire. The plants from the old ones to be slipped off, planted, and watered, no further nourishment being now necessary from the parent tuber. The top shoot may be left on, and planted with the whole set. Transplant in small shallow drills.

Another (and, perhaps, the chief) advantage of thus raising potatoes in advance is, that during the dry months of March and April, opportunity will be better afforded in bringing the ground for their reception into the utmost perfect condition.

These remarks apply equally to raising potatoes early from *selected seed*, and are the most essential points in obtaining full crops from this source.—Hardy & Son, *Florists, &c., Maldon, Essex.*

[This is not, we think, a new mode, but, nevertheless, worthy of trial. There is no doubt it saves a large portion of the potatoes required for seed when whole ones are employed, but we do not see how it saves any if cut sets are employed, and we very much fear that the crop would be greatly diminished.—Ed. C. G.]

Cochin-China Fowls.—As I perceive inquiries are made respecting the Cochin-China fowls, I beg leave to make a few remarks, and also to add a few questions on the subject. In all descriptions of the *breeds* of poultry, your articles would be of great value if they were more minute and accurate—a minuteness which not only states what the breed *ought* to be in external appearance, but also what it *ought not* to be. Mr. Doyle, Mr. Richardson, and Mr. Dixon in his poultry book, all fail in this. Mr. Dixon is more explicit than the others. In speaking of the Cochin-China cock, he says:—"The cock has a large, upright, single, deeply-indented comb." Query, have not some cocks double combs? "The legs are of a pale flesh-colour." Query, are they not sometimes yellow? "The feathers on the breast and sides are of a bright chesnut brown." Query, are not some a dark red brown, varying up to a bright bay? Is the colour of the plumage *always a single pure colour*, viz., a red brown up to a bright bay, with sometimes a more or less speckled appearance, arising from some of the feathers being black, or tipped with black, and are there ever white spots? "The tail feathers are black, and darkly irradiant." Query, are they always so? Your cut in part XV., gives three feathers as if they were white ones. Mr. Dixon says, relative to the toes, "My male bird has two claws on the toe of one foot, a peculiarity which is inherited by some of the chickens." I have some that have five toes. Another characteristic which I have not seen named, is a thick tuft of feathers on the thigh of each leg. Mr. Dixon's book would be a valuable one, if the descriptions of the *breeds* were minute and accurate; if it were curtailed to half its size, with an accurately coloured portrait of *each distinct breed*, it would be of great value to the breeder of poulty. If this could be attained in your periodical, it would become a valuable book of reference on this subject, as it is on others.—A Subscriber.

Standard Pelargoniums.—As you have drawn attention to them, permit me to warn the unwary amateur not to venture trying too many in that way, until he has convinced himself of the utility of the plan, as I consider it a retrograde movement. Pelargoniums so treated will differ but little from the shanky, old-fashioned way of growing them that our fore elders adopted, planting their long-legged, pot-bound plants in the summer (after they had exhausted the little energy they had in flowering in the house), tying them up to a stake, where they remained until September, when they were taken up and potted again, being then well furnished with shoots, and looking well; unfortunately, that was the only time they did look well, as the more extended growths these shoots attained, together with the warmth and shelter of a greenhouse, soon weakened their shoots, as not to be able to support themselves in their right position; the consequence was, stick or string was resorted to, and the plant speedily became unsightly. Now, I cannot see in what way those standard or pillar geraniums you speak of, differ from those old-fashioned ones I allude to; certainly the improved gardening of the present age may do better things than our fathers did, yet, I presume, the same fundamental laws still exist, one of which I conceive to be, that the geranium, to do well, must be always in a growing state—the foliage soon tells if they are not. Now, supposing them to be so, and the shoots of the pyramid plant you speak of were four or five inches in October, when the plants are housed, how long will these shoots be in May or June, and how is a stick or string to be introduced into a standard plant like it? and without such support, I imagine the plant will have a very unsightly appearance. I am no advocate for sticks, and therefore recommend dwarf plants, as not requiring them. —S. N. Y.

Tobacco Fumigation.—In return for many valuable hints gleaned from The Cottage Gardener, I have pleasure in sending the result of a successful experiment in smoking a greenhouse; finding it, after repeated trials, preferable to any I have hitherto known, in saving time and expense. I will give particulars, and only add, before doing so, that their correctness may be relied upon. For our greenhouse, which is a small one, nine yards long by three wide, I used the following:—Four pieces of coarse brown paper, each the size of a common newspaper; one ounce-and-a-half of tobacco, and a tablespoonful of nitre; the two last were put together in a wash-handbasin; this size is best, and had exactly a pint of boiling water poured over them, then covered and left about an hour, when it had become cool enough to allow of the tobacco being collected by the fingers and then thrown away. The papers had previously been folded in three or four folds, and were now dipped separately in the liquid, and squeezed out: this quantity was just enough for them. They were then unfolded and put to dry upon a clothes-horse before the fire, and when dry were again folded as before, rolled up, not tightly, and each put into an *empty* flower-pot, just large enough to hold it *without crushing*. They were then ready for the greenhouse, and were placed upon the floor in different parts; a lucifer match finished the process, and for nearly an hour the smoke was too dense to allow anything inside the house being seen, even close to the windows; the papers all burnt to ashes to the bottom of the pots. Till trying this plan I had been accustomed to use tobacco rolled in brown paper prepared with nitre; and half a pound of tobacco was as little as would answer, the same quantity of paper also was required. On the whole, the expense was as nearly as possible *as much again* as by the present method, and I can safely say the success was not *always* as effectual. I will now mention another experiment tried the winter before last, with branches of ivy, as a protection for fuchsias. The same thing may possibly have occurred to others, but not having known it tried or proposed, I may be excused if giving a hint already in use. The ivy continued green, with no signs of decay, from the beginning of November to the first week in February, and the fuchsias were preserved alive to that time; but not being able afterwards to replace the ivy, or attend to it, the plants were neglected, and died down to the ground. I cannot but believe, that had this plan been tried properly, it would have answered perfectly. The *cut ends* of the ivy branches were tied to the *tops* of the stakes placed round the fuchsias, and this, I thought, prevented the sap running out, and kept the leaves longer green. The appearance of the whole was that of an ivy tree, and was ornamental. At a future opportunity I hope to add another scrap or two of experience in gardening affairs.—S.

Poultry.—Cochin-China and Dorking.—Having for some years kept the black Spanish fowl, which I consider a very superior variety, and having taken great pains to preserve them pure, by selecting the best chickens out of my broods, I fell into the common error of breeding in too much, which exemplified itself by the chicks not feathering in due time; indeed, to such an extent did this run, that the chickens hatched in May were not sufficiently clothed by the end of autumn to protect them from the rigours of winter, and many died in consequence. To obviate this, I made away with the Spanish cocks, and purchased some of the Cochin-China breed last spring, in hope this cross would be of service; and have had the satisfaction of seeing my most sanguine expectation surpassed. My flocks have been numerous, strong, and healthy; the chickens were reared with very little trouble, being much more hardy than either the Spanish or the Dorking. They have grown to a large size, weighing from six and a-half to seven and a-half pounds each bird. Their flavour, when cooked, is most delicious. Those pullets, hatched in May, began to lay early in October, and have continued laying, without any intermission, the whole of the past winter.

I always keep a few hens of the Dorking breed for the purpose of sitting, as they make more attentive mothers than the Spanish do. For the first three weeks or a month after the chickens are hatched, I have them fed upon boiled rice, mixed with softened bread. It is the small rice we use; the shopkeepers call it riddlings, and costs about a penny per pound; but by purchasing a large quantity at a time, it may be had at a still lower price. I find it a very cheap kind of food, as it goes a great way when boiled.

I am perfectly aware that many judges in poultry would object to having a cross breed in their stock; but should any one be induced, by my example, to cross their pure-bred Spanish fowls with the Cochin-China, I feel convinced they will be perfectly satisfied with the result, at least so far as beauty of plumage and usefulness are combined. Helena M.

Mistletoe.—I see a doubt expressed, at page 229-230, of the number for January 31, whether mistletoe would grow upon apple trees. I heartily wish it would not. In this apple-growing county (Herefordshire) the old apple trees are sadly infested by it, but I never find it on the oak or other trees. Verax.

TO CORRESPONDENTS.

***** We request that no one will write to the departmental writers of The Cottage Gardener. It gives them unjustifiable trouble and expense; and we also request our coadjutors *under no circumstances* to reply to such private communications.**

Apple-trees Unhealthy (*T. E. U.*).—We cannot discern anything like disease in the piece of bark which you sent; but if the trees do shew blotches in their bark, and as they are exposed to the northerly winds so far north as you are (Ormskirk), we should improve the temperature of the soil in which they grow, by draining it. The best *edging*—"partly ornamental, and partly as shelter"—for your flower-beds would be made by planting round them the Laurestinus.

Fermenting Materials (*A Young Gardener*).—The cow-dung and straw will do for heating your pit, if they are well worked together, and brought into a fermenting state; though they are not so good as a similar mixture from the horse-stable. The heat from them is not so enduring. Raise your *cucumber* plants in pots, rather than in the earth of the bed, as they are easier managed in case the heat becomes too high. If you will refer to the indexes of our numbers you will find all your other questions answered. If you raise a *fruit-tree from a cutting* it will, of course, resemble exactly its parent, of which it is actually a part, nourishing itself from the soil, instead of from the parent stem.

Earthing-up Potatoes (*J. Norris*).—The reason why it should not be done is very simple. It retards the growth of the tubers, and diminishes the weight of the crop. It is, therefore, much worse than labour thrown away. Keeping potatoes cleared from weeds, and about an inch in depth of soil over the tubers nearest the surface, is all that they require. In experiments instituted for the purpose, we found, in some instances, the crop earthed-up was less by one-fourth than those from plants unearthed. Try a few rows, and convince yourself. Dig in your bad crop of vetches, after dressing them over with soot and salt, and plant your potatoes there. For *carrots* on your poor sandy soil, trench it, and turn some manure in with the *bottom spit only*, on the plot where potatoes were last year.

Tank for Liquid Manure (*A Regular Subscriber*).—Pray refer to our first volume; you will there find, at pp. 185, 242, 278, 288, 308, and 312, every particular you require, except as to a roadway over the tank. On this point you must consult a bricklayer about turning an arch over it. We have no room to reprint the directions for tank-making.

Burbidge's Eclipse Pea (*A Retired Tradesman*).—These need not be grown nearer than in rows eighteen inches apart.

Red Rhubarb (*Ibid*).—If you sow the seeds of this, or of any other variety of rhubarb, it will not invariably produce plants similarly coloured as the parent. Field *carrots* and *parsnips* are best sown in March. The *Altringham* carrot and the *Guernsey* parsnip are best for cow food. They are equally good keepers, if properly stored; and we should grow both, as all animals like a change of food.

Bees (*Ibid*).—Our correspondent says:—"In the Bee-keeper's Calendar for September, 1849, I read: 'where it has been found necessary to place two or three receptacles for honey upon the stock hive, the uppermost one' (of the three) 'may certainly be removed, and generally the one next to it.' Now, I shall feel obliged by your informing me whether it is necessary, or at least sometimes desirable, and if so, under what circumstances, for the sake of giving more room, &c., to a crowded population, to allow *three* receptacles to remain on during the season?" It is sometimes necessary to place three receptacles for honey upon a stock hive, because one is placed at the commencement of the honey season; but, *before it is sufficiently* filled to be removed, symptoms of a crowded population are seen; another is then given in addition, which is immediately filled with bees, and combs worked in it; rain then sets in, no honey can be collected, but *breeding* goes on as usual; the population again becomes too large for the hives, and, if a third be not given, either swarming or clustering at the entrance (both of which it is desirable to prevent) will certainly follow, although neither of the hives are sufficiently filled to be taken away.

Bees.—*A would-be Apiarian* says:—"My object is to obtain honey in small glasses, without holes in the top, for the sake of their greater sightliness, and the greater convenience in sending them to friends. I propose to place on each adapting board at the same time four glasses, in shape resembling a small hive, over a corresponding number of holes, about three inches in diameter." You may succeed very well with four glasses of the size you mention; but it will be necessary to put a piece of guide comb into each of them, as directed in The Cottage Gardener, page 42, vol. ii. Two inches diameter will be better than three inches for the holes; but the quantity of honey in small glasses will be *much* less than if stored in one large one. The guide comb must be *perfectly* white, and in which no honey has been stored; a very small piece, say half an inch deep, fixed at the top of the glass will be sufficient.

An Amateur will find his case has been attended to this day by Mr. Fish.

Tan in Brick Pit (*T. E.*).—We see no objection to the use of tan instead of dung, as a means of heat. Leave a space where you may examine if its coldness afterwards proceeds from dryness, as that may be obviated by pouring water through a tube, which will cause the tan to ferment again. There will be no difficulty in heating the bed, when the heat declines, by placing a lining round the solid wall; and there will be the advantage, in such circumstances, of having no reason to dread steam. A brick wall is a capital conductor of heat. You are quite right in proposing to raise the melon-plants in the small dung frame appropriated to cucumbers. You may thus be getting on while the bed in the brick pit is preparing.

Green Bank in Conservatory (*H. Y. B.*).—This, raised over a passage which connects the front and back gardens, you wish to be always "*green*, *varied*, and *airy* in character." For this purpose, we do not think you could do better than supply the bank with sandy peat and loam, and plant it chiefly with ferns—for the proper kinds, see first volume; and between, and near the front, use the different *Lycopodiums*, such as *L. denticulatum*, *densum*, *depressum*, &c.; and in a warm corner, *stoloniferum*. Near the front, if there is a piece of wall to cover, the *Ficus stipulata* will cling to it, or the bank either, and present a pretty green carpet, though neither so pretty or interesting as the ferns and mosses. Small fancy plants, such as *cyclamens*, and bulbs, such as *hyacinths*, *ixias*, *lachenalia*, &c., might either be planted at once, or introduced when in bloom, the pots being concealed by the mosses. *Climbers for the roof*, if to be planted in the bank, should have their roots confined in large pots, or places enclosed with brick or wood, or they would soon monopolise all the virtue of the soil to themselves. In such a roof (dome-shaped) *Passiflora Bellottii*, *P. edulis*, and *P. racemosa cærulea*, would answer admirably, in conjunction with *Mandevilla suaveolens*, and *Ipomea Learii*, presuming that the average temperature in winter is not below 45°. See a late article by Mr. Fish on "conservatory climbers."

Cyclamens (*Tooting*).—Have you attended to watering properly? With such few leaves on them as yours had, very little would be required. If they have strong roots, they may yet flower well, as they do not like to be hurried. If kept very dry before being potted, they take longer time to throw out their flowers, and require to be more carefully watered, not allowing the soil to be wet until it is occupied by roots.

Pruning Timber and other Trees (*F. P.*).—The *reason* your neighbour assigns for cutting off all the branches of his trees within six inches or a foot of the trunk, leaving a few entire at the top—namely, "that a tree with its branches is like a man with a large family, that keep drawing him until he grows as thin as a cat"—we consider more witty than convincing, inasmuch as we doubt his premises, and therefore can have nothing to do with his conclusions—our own cats being anything but thin; and the happy fellows of our acquaintance that can sit at the ingle cheek, and smile upon their offspring as sources of their strength, being more distinguished for rotundity and rubicundity than lanky-looking, desolate, solitary bachelors. The subject is one too great to be entered upon here; but we will answer your queries by two propositions. 1st. The more numerous and extended the branches of a tree, the greater will be its size and weight; but that weight is weight as a whole, without any reference to the question of *fitness*. 2nd. The object of the pruner, therefore, is not so much to increase weight as to direct the strength of the plant into a definite channel; that a fine large bole for the carpenter may be obtained, instead of large, uncouth limbs, fit only for the faggot-stick; and to effect this purpose all pruning should be done early, when the wound will heal over in a season. The trees mutilated by your neighbour, can only maintain a lingering existence, unless the snags break out strongly; and if not, then the longer the timber stands the less worth it will be, as it will be full of rotten knots.

Loudon's Hortus Brittanicus (*Rev. H. W.*).—A second supplement and a general index of this work, including all plants known down to March, 1839, has been published.

Liquid-manure Tank (*H. R., Essex*).—Your old steam-engine boiler will answer for this purpose admirably. Its being of iron will not injure the manure, nor the plants to which this is applied.

Gooseberry and Currant Cuttings (*A. R.*).—Never mind what the market-gardeners tell you, you were quite right in removing from the cuttings all the buds that were to be buried in the earth. It you cut out the buds deep enough you will not be bothered with suckers.

A Bower.—*R. Reynoldson* says, "I have on one side of my little summer-house a horse-chesnut, and on the other a sycamore—half-grown trees; and it strikes me they, and my summer-house too, would be made more pleasing objects, if I could train up some hardy climbers round the naked stems." Nothing can look better than a summer-house within a bower, as you propose, by getting climbers to run up the trees around it. There is not the least fear to be apprehended by cutting some old roots, to make room for a tar, or any other barrel or vessel, only keep strictly to our rules. All the climbing roses which we have often recommended are peculiarly suitable for this kind of decoration, because we know where to apply our liquid-manure to their roots; for, after all, what are these contrivances but immense pots? And by pouring doses of moderate strength into them regularly, throughout the growing season, we have our climbers just as much under our own control as the geranium on the window-sill. Honeysuckles, clematis, Virginian creeper (*ampelopsis*), jasmines, the sweet-scented grape-vine (*vitis odoratissima*), *Aristolochia sipho*, and many others you will find mentioned in previous numbers; and, of course, half-hardy climbers, as *Maurandia*, *Lophospermus*, *Cobea*, *Eccremocarpus*, &c., may be planted in summer for additional decoration, and for filling the bottom. You will recollect that Mr. Beaton closed abruptly his observations, but he, probably, will take it up again, and finish it.

Tree Mignonette (*E. B. W.*).—Your plants, "now running into weak spindly flowers," have been either stifled for want of pure air, since last October, or their roots have perished through some fault in the soil, drainage, or watering; but to know what is the real cause is not in our power. You certainly did not injure them by nipping off the tops; and, as soon as you read this, take a sharp knife, and cut off all the "spindly" parts down to the last four leaves on each shoot; turn the plants out of doors every fine day for a few hours, and do not water oftener than twice a week till the end of March, and if the roots are right you will see them thrive rapidly. The long-continued frosts of January, and the soft muggy weather at the beginning of February, have caused a great prevalence of spindly growth, in most places, through want of air.

Purchasing Plants (*Ibid*).—The proper time to purchase plants is late in the spring and early in the autumn. All bulbs ought to be bought while they are at rest, and that is the only absolute rule; plants in general are bought at all times.

Climbers among Trees.—*A Parson's Wife* inquires for some that will succeed among a group of trees, in good ground, near water. *Clematis montana*, *C. flammula*, or, indeed, any of those mentioned in Mr. Beaton's list will suit you; also young *Glycine sinensis*, *Aristolochia sipho*—for its handsome foliage, honeysuckles, jasmines, climbing roses of all sorts. And you may try also *Solanum jasminoides*; it has lived out at Shrubland Park this winter without the least protection. The blue passion flower would also suit you; and if cut down in winter, a barrowful of leaves put over the roots would preserve them from frost, and they would bloom every year; and the same treatment would do for the *Mandevilla*, which in a good aspect would be likely to flower. The *Torenia asiatica* will not do for beds or borders generally.

Neapolitan Violets (*Ibid*).—You confirm the statement that the runners of the Neapolitan violet do not flower the first year, by saying, "mine, which were simply pegged down last summer, are covered with buds." But the wording of the statement was not so clear to you as to us gardeners, and such instances will stimulate us still further to write more minutely.

Cow Urine (*An Inquirer*).—This, if fresh from a cow-house, is too strong for any thing! We write emphatically, to guard our readers against the use of strong doses. One bucketful to four of water will be strong enough.

Vines for Greenhouse (*Ibid*).—"A dozen kinds of grape-vines" are by far too many for your greenhouse. The *Black Hamburgh* is the best black grape for a greenhouse, and the next best black one is the *Black Prince*. The best white is the *Royal Muscadine*, and the next best white is the *Sweet Water*, but this is a bad setter, unless the bunches are shaken daily while in flower, to disperse the pollen. The *Chasselas Musque* is the very best white grape in cultivation, but is liable to crack when nearly ripe. A dry house, with abundance of air, prevents this cracking. The *White* and the *Black Frontignan* are two excellent grapes for a greenhouse, but the plants are of a tender constitution, and ought to be grafted on the Black Hamburgh. The *Verdellho* is a strong, hardy, white grape, but the bunches and berries are small.

The Slater (*Ibid*).—The flattish blue insect which troubles you on the peach-tree is, we believe, the woodlouse, known in some districts as "the Slater." It is a troublesome one to keep down. Gas-tar, as you propose, would do little good; you had better trap them, by laying down pots on their sides, with a little dry moss in them: the creatures will lodge under the moss, and you can empty the pots daily and destroy the insects.

Mistletoe-seed (*Ibid*).—We cannot forward the seeds as you propose, but if you will send us a stamped envelope, with your address, and with the word "*Mistletoe*" written inside, we shall hand it over to a friend who has promised to supply them; and if any more of our readers want seeds of the plant this season, we ought to have their envelopes forthwith, as the seeds will be over for this year.

Flower-beds (*Novitius*).—You wish to fill twelve small beds with as many kinds of flowers which will keep gay as long as possible. If you have no "furnishing" plants on hand, and cannot buy many, you must put up with annuals; and Mr. Beaton will describe all the best annuals about the middle of March, and the proper way of treating them, so as to keep up a cheap succession of flowers all the summer; meantime procure those annuals he wrote about late last autumn.

Bell-glasses for Bees (*Juventus*).—Bees can see to work in very slightly illuminated places; they would coat the inside of the glasses with wax, if they were not covered over so as to exclude the light. Geraniums and fuchsias might be kept through the winter under hand-glasses, if trouble and labour were no object, to exclude the frost, give air, &c., &c. The mould may be dispensed with in striking cuttings in phials of water. You will find your other questions answered in previous volumes, if you will refer to the indexes.

Dark Climbing Rose (*E. Ward*).—*Crimson Boursault* would suit you.

Making Hotbeds (*Original Subscriber*).—Every one of your questions are anticipated at pp. 146 and 163 of the present volume.

Planting Potatoes (*Enquirer*).—Plant every potato you intend to plant without a day's delay. A foot apart in the row, and two feet between the rows, are good average distances. The tall-growing varieties had better be six inches further apart. Read our "*twelve* golden rules," at p. 72.

Super-phosphate of Lime (*Bank*).—This is a salt composed of phosphoric acid and lime. It is made for manure, by dissolving bones in oil of vitriol.

Liquid Manure for Celery (*Ibid*).—A bucket full of the drainage from a stable, added to four buckets of water, will answer your purpose; or any of the liquid manures mentioned by Mr. Turner, and other celery-growers. See our indexes.

Black-beetles (*J. A. R.*).—If we had space to spare, we would insert your very amusing letter. The cat would not eat the phosphorus paste, nor could she get at it if you put it into holes and crevices. If you cannot make it, buy some of the phosphorus pills prepared by Mr. Purser, 40, Bridge-street, Blackfriars.

Barkeria (*G. B. C.*).—We are obliged by your correction. This genus, as you state, was named after the late *George* Barker, Esq., the justly esteemed orchid-grower at Birmingham. We published "The Modern Gardener's Dictionary," which, though not "explaining every term," may suit your purpose.

Roses Budded last July (*R. P. G.*).—These being budded in hedgerows, you had better cut down the stocks to the buds, and move them into your garden next November. If you move them now, you will injure the buds probably.

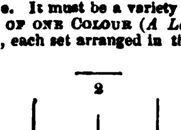
Celery Splitting (*Ibid*).—The soil about the stems, if too wet and clayey, will cause them to split and canker. Order the *Indexes* through your bookseller; we have no stamped copies to send by post.

Plumbago Larpentæ (*Verax*).—Your plants, now dry and withered, should have their tops cut off when the plants begin to grow.

Cæstrum Aurantiacum (*Ibid*).—This, received by you in frosty weather, has become withered. Though a hardy greenhouse plant, the frost has injured it. Cut it down near to the pot, and try it in a gentle hotbed. Perhaps the roots are safe.

Nutt's Celery (*Ibid*).—You can obtain it of Mr. Nutt, near St. John's Church, Park, Sheffield. You could have a bark bed for pines in your vinery. You will much oblige us by sending us a few of the seeds you name. It must be a variety of the *Kohl Rabi*.

Beds of Flowers of one Colour (*A Lady Subscriber*).—You have two sets of beds, each set arranged in this order; your garden is exposed to the winds and sun, and in a cold part of Yorkshire. To meet your wishes, that the flowers may be low and shrubby, put in bed No. 1, *Eschscholtzia crocea*, sown as proposed. It will not transplant, and must therefore, be sown in the bed any time in April. In Nos. 2 and 4, *Nemophylla insignis*; sown in the first week in April, and will transplant. To succeed it, sow *Viscaria occulata* in an open border about the 20th of May, and transplant it when the *Nemophylla* has done flowering at the end of July. In Nos. 3 or 5, whichever of them is nearest the walk or windows, *Saponaria calabrica*. Sow it under a hand-glass about the middle of March, and transplant it about the end of May, or a little earlier if your plants are strong. It will flower on to October. In Nos. 5 or 3, the one farthest from the window or walk, *Eucharidium concinnum grandiflorum*. Sow it in the bed on the 1st of April; and sow *Sweet Alyssum* about the middle of May, to transplant after the *Eucharidium*; all these will carry you on to October. In the middle of the second set of beds plant *Tagetes tenuifolia*, from seeds sown under a hand-glass about the middle of August; and we shall ask Mr. Beaton to furnish you with a different set of annuals for the other beds; but we would repeat the others.



Commelina Cœlestis (*W.*).—There is no such plant as *Camilla celesta*; is it not Commelina cœlestis? If so, put the seeds in a cucumber frame till they vegetate, and harden them off; plant them in a rich border about the end of May. They will be two feet high by the autumn, and will then flower; but the frost will kill the tops, but you can save the roots, and treat them as dahlia roots.

Double Anemone (*Ibid*).—Sow your double anemone now in a box of rich light soil; place it in a cold frame till the seedlings appear, and then harden them off to stand out of doors in some sheltered place.

Lilium Speciosum Seed (*Ibid*).—Sow in a cucumber bed, and when the seedlings are three inches long, harden them off to stand in a cold pit. If your seeds are true, you have a treasure.

Camellia Buds Falling (*Ibid*).—Your large camellias were not half watered while they stood in the passage in your house, and the air of such a place will never grow camellias to bloom well. They should never get very dry at the roots.

Small Pit (*A. Z.*).—You ought to be able to get inside your nice pit in bad weather from either end. A passage through the middle, 18 inches wide, would be sufficient; and to get head room, you might sink this passage. Then you would have a back shelf, as you propose, up to the chimney, and one along the whole front; and if you were hard up for room, the passage might be covered with a moveable stage or shelf, but we should prefer it without this.

Melilot Clover.—We have had some seed of these sent to us; and, finding that they have been cultivated by a friend, it will be useful to publish his experience. He says: "I experimented, for several years, with several Melilots, but have not found them sufficiently profitable, or convenient, to induce me to pursue their culture. In the first place, do not let your cows get at them, for they impart an abominable taste to milk and butter. They are biennials; very productive, but very difficult to manage. One—*Trifolium melilotus sibericum*, which I received under the name, I think, of *Candahur clover*—in rich and trenched soil, grew fourteen feet high; but, in that state, the base of the stalk was as big as my two thumbs, and so ligneous, that it could not be cut with a common scythe. You would require a short, strong scythe, such as the Welchmen cut furze with. If you had a furze-cutting machine, wherewith to reduce it into fragments of an inch in length, it might make fodder for elephants, hippopotami, or giraffes! or any animal that crunches the branches of trees. Perhaps a horse might pick a little of it; but it would be too woody for him to eat it all in its adult state; nor does the horse much like it. I saved between one and two acres for sheep-feed, and put in the sheep as soon as the flowers appeared, before it had attained half its stature. The sheep ate of the leaves and buds, and the top part of the stalks, but left a great part of the stalks standing. It, therefore, seems difficult to appropriate its vast produce in any eatable and profitable form. It will appear, from what I have said, that it would be an unsuitable crop for hay. A neighbour of mine, who saved a crop for sheep, said that he could not get his sheep to eat it at all. Mine did eat what was tender. Whether, if it were depastured continually from its first springing, it would answer better, I cannot say—perhaps it might; but I have not tried. I also tried the Bullock Melilot of America, but its character was nearly the same, though it was not quite so gigantic as the other. If these continued succulent up to the time of their attaining their full growth, I think they might be rendered valuable; but their rigidity present difficulties, which I shall be glad to see some ingenious adapter overcome. I should add, that my Asiatic species was white-flowered, and my American yellow-flowered; and it is possible, that these two species which you have sent may present some difference of growth or habit, which may render them more available; but, from having also cultivated the *Melilotus macrorhiza* of Hungary, and *Melilotus officinalis* of Britain, and *Melilotus cæruleus*, I find their habits so much alike, that I should not be sanguine in my hope of their utility. The produce of seed is enormous from all of them, so that the experiment may be easily tried."

CALENDAR FOR MARCH.

FLOWER GARDEN.

Annuals (Tender), such as the Portulacas, Mesembryanthemums, Lobellias, &c., sow, b.; (Hardy), sow on dry borders, b. and e. **Biennials**, sow, e. **Dahlias**, sow, and force old roots for stock, b. **Dress** every part within the boundary as early as you can. **Edgings** of all sorts finish off as early as possible. Finish all the **Planting** and **Spring Pruning** of trees and shrubs, and all necessary alterations as soon as the weather will permit. **Grass** and **Clover Seed** sow with a liberal hand over patchy grass; keep the grass in clean, trim order, and roll it three times this month, and oftener if you can. **Gravel**, clean, roll, and relay. **Hand Glasses**, the best of all aids to rear half-hardy, and such other annuals as come up weakly at first, place them on a warm sheltered aspect. **Hoeing**: never hoe a border in March, for fear of killing something which you cannot yet see. **Hotbeds** are only good helps to those who can well manage them for the flower-garden; keep them up to 70°, and steady. **Hyacinths** and other **Bulbs**; as soon as they appear, stir the beds and lighten the soil round the plants; and plant spring **Gladioli** at once. **Perennials**, with the exception of long fleshy-rooted ones, ought to be removed—divided, if necessary—and receive some fresh soil, or be planted in new situations at least every third season; see to this rule, and treat one third of each family, every February or March, according to it. **Protection** is necessary for almost all young things of a tender nature this month. **Rakes**: lock them up, b.; if your man cannot dress a border without a rake, pity him. **Roses** finish pruning, b., except, perhaps, a few strong ones be left unpruned till April, to bloom later; but this plan is radically bad, and not necessary now with our perpetuals. **Stakes**: see if you have a stock on hand for your dahlias, hollyhocks, and all other plants requiring them next summer, and see that all the old ties and rotten stakes are out of the rosary. **Sweet Briar**, sown in a single row, will grow and make a hedge in such poor soil as would kill other roses. **Turf**, lay. **Water** the foliage only of late planted evergreens; root watering is often more injurious than we think this month.

D. Beaton.

GREENHOUSE.

Air admit in fine weather, when the outside temperature is above 35°; a shut house is better than cold currents and night fires. **Bulbs** and **Tuberous** roots introduce, and water more freely; start the various kinds of Achimenes, Gesnera, and Gloxinia, in hotbed. **Calceolarias** and **Cinerarias** water more freely, shade in sunny weather, shift for succession. **Camellias** and **Azaleas** water more plentifully when in bloom. **Diosma**, **Epacris**, **Heaths**, give abundance of air when growing and flowering; **Prune** freely when done flowering, and keep close until they begin to grow, when the roots had better be examined. **Hotbeds** prepare for sowing Primula seeds, and any other desirable greenhouse plants, raising cuttings, sowing seeds, or striking cuttings of the commoner sorts for stocks, on which to inarch or graft Correas, Oranges, Camellias, &c. **Insects** destroy. **Leaves** and **Stems** clean. **Lilies, Japan**: after the stems appear, place in a light, airy situation. **Mignonette** and tender annuals sow in a slight hotbed, to be afterwards hardened off. **Soil** prepare, turn, and expose for a general shifting about the end of the month. **Train** large plants of Pelargoniums, intended for early flowering; **Stop** those for late summer and autumn. Tie climbers to rafters; train those daily on trellises; and, as the season is now getting on, let neatness, order, and cleanliness, everywhere prevail.

R. Fish.

FRUIT GARDEN.

Apricots, prune, if before neglected, b.; young ones, head down. **Apples**, dress for blight. **Blossoms** of wall-fruit, protect. **Currants**, finish planting and pruning, b. **Espaliers**, generally finish regulating, b. **Figs**, plant; make layers; plant cuttings. **Fork-over** the borders and quarters, if before omitted. **Gooseberries**, prune, if before neglected, b.; finish planting, b. **Grafting**, in mild weather, is best done this month. **Scions**, prepare. **Hoeing** cannot be done too often. **Mulch** round the trees newly-planted, to keep the roots moist. **Medlars**, **Mulberries**, and **Nectarines**, neglected before, prune, b.; young, head down. **Pears**, carefully prune and train. **Planting**, omitted, complete, b. (See Feb.) **Pruning**, in general, complete, without fail, b. **Raspberries**, finish planting, b. **Strawberries**, finish dressing, b.; plant. **Standard Orchard-trees**, finish pruning, b. **Suckers**, for stocks, may be planted (See Feb.) **Support**, with stakes, trees newly-planted. **Stocks**, raise from seeds of apples, pears, quinces, and medlars. **Trench**, &c., ground for planting. **Vines**, finish pruning without fail, b.; plant cuttings, and make layers. **Walnuts**, p.

In *Grafting*, commence with plums and cherries; but scions on the latter, if inserted on large trees, seldom succeed. Loose branches and last year's shoots of pears and other fruit-trees, trained as *pyramidals*, fasten in their proper positions.

R. Errington.

FORCING DEPARTMENT.

Air, admit freely. **Aphides**, destroy in all forcing structures by fumigation. **Asparagus**, provide succession. **Cherries** ripening require but little water. **Capsicums**, sow, b. Forward **Cucumbers**, to replace those which fruited in winter. **Plants** to flower in pots, continue to introduce. **Kidney Beans**, provide successions. **Leaves**, clean by the sponge and syringe. **Mushroom** bed for spring, make. **Pines** require more water and greater heat; syringe their crowns; give liquid manure; shift into larger pots. **Peaches**, thin; the day temperature for them should not exceed 70°; disbud; trim; water abundantly. **Propagate** hothouse plants by slips, cuttings, suckers, and layers, according to the plant's nature; it is the best season. **Seedlings** of culinary plants, remove to a cooler place. **Strawberries** in pots, continue forcing. **Temperature** for pines should be about 85° at midday, and during night 60°; in the flower-stove 65° and 55°. **Sulphur**, apply on flues and pipes to destroy red spider. **Tobacco** fumigations continue. **Tomatoes**, sow, b. **Vines** are now all in motion; thin; train; keep well supplied with liquid manure; air, keep moist, except to those in blossom; but be cautious, or the mildew may visit you; temp. as last month. **Melons**, provide succession.

R. Errington.

KITCHEN GARDEN.

Angelica, sow or plant. **Artichokes**, dress; plant. **Asparagus**, sow; plant; force; and dress beds. **Balm**, plant. **Basil**, sow. **Beans**, plant; earth up. **Beet** (red, white, and green), sow. **Borage**, sow. **Borecole**, sow, e. **Brocoli**, sow; mark for seed. **Burnet**, plant and sow. **Cabbages**, plant; earth up; sow. **Capsicum**, sow, e. **Cardoons**, sow, e. **Carraway**, sow. **Carrots**, sow, e.; main crop. **Cauliflowers**, plant from frames; give air to those under glass; prick out spring-raised: sow, b. **Celeriac**, sow. **Celery**, sow; dress and earth up. **Chamomile**, plant. **Chervil**, sow. **Chives**, plant. **Clary**, sow. **Cress** (American), sow. **Composts**, prepare. **Coriander**, sow, e. **Corn Salad**, sow. **Cucumbers**, sow; prick out; plant; impregnate those under glass, &c. **Dill**, sow. **Fennel**, sow or plant. **Garlick**, plant. **Hoe** generally in dry weather. **Horse-radish**, plant. **Hyssop**, sow, e. **Jerusalem Artichokes**, plant. **Kale** (Sea), plant or sow; force. **Kidney Beans**, sow, e., in slight hotbed, to be protected; attend to those forcing. **Leeks**, sow. **Lettuces**, sow; prick out, and plant out from frames. **Liquid Manure**, give to Cabbages, &c. **Marigolds**, sow. **Marjoram**, sow and plant. **Melons** sow, for succession, or strike cuttings. **Mint**, plant; clean beds. **Mushroom Beds**, attend to; make. **Mustard** and **Cress**, sow. **Nasturtiums**, sow. **Onions**, sow main crop; transplant autumn-raised; plant for seed, b.; (Potato and Tree), plant. **Orach**, sow. **Parsley** (Com. and Hamb.), sow. **Parsnips**, sow, e.; main crop. **Peas**, sow; earth up; stick, &c. **Pompions** and **Purslane**, sow, e. **Pennyroyal**, plant. **Radishes**, sow; thin. **Rampion**, sow. **Rape** (com. and edible-rooted), sow, e. **Rhubarb**, sow, b.; plant, b. **Rocambole**, **Rosemary**, and **Rue**, plant. **Sage** and **Shalots**, plant. **Salsafy** and **Scorzonera**, sow. **Savoys**, sow; lay in for sprouts. **Sea-Kale**, sow in patches, in a prepared bed. **Skirrets** and **Succory**, sow. **Sorrels**, plant and sow. **Spinach**, sow; weed, &c. **Tansy** and **Tarragon**, plant. **Tetragonia** and **Thyme**, sow, e. **Tomatoes**, sow, e. **Turnips**, sow, b. e.; or once a fortnight.

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WEEKLY CALENDAR.

M D	W D	MARCH 7—13, 1850.	Weather near London in 1849.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
7	Th	Perpetua. Sweet Violet flowers.	T. 54°—38°. W. Rain.	35 a. 6	48 a. 5	2 50	23	11 16	66
8	F	Frog croaks.	T. 49°—23°. N.W. Rain.	33	50	3 39	24	11 2	67
9	S	Gossamer floats.	T. 43°—29°. N.W. Rain.	30	51	4 22	25	10 46	68
10	Sun	4 or Midl. S. Brimstone Butterfly appears.	T. 43°—24°. N. Fine.	28	53	5 0	26	10 31	69
11	M	Creeper's spring note heard.	T. 46°—30°. W. Fine.	26	55	5 32	27	10 15	70
12	T	Gregory. Gooseberry in leaf.	T. 56°—43°. N. Fine.	23	57	6 1	28	9 59	71
13	W	Peach blooms.	T. 59°—36°. S.W. Fine.	21	58	sets.	●	9 43	72

Perpetua is recorded by some authorities as a Roman maiden, who suffered martyrdom for refusing to abjure Christianity during the fifth general persecution of its believers under the Emperor Severus. Other authorities state that she was a matron, and that her firmness when sentenced, and separated from the child upon her bosom, was said to have influenced, even to conversion, her judge. Hillarian. She was exposed, A.D. 205, to the attacks of an enraged bull; but the sword of the executioner had to complete the murder.

Gregory, surnamed **The Great**, has been described as "the worst bishop of all that went before him, and the best of all that came after him" He is called by our historian, Bede, "the Apostle of England;" and although he was not the introducer of Christianity into these islands, yet Augustine, whom he sent hither, was the means of converting the chief of the heathen inhabitants. He was raised to the pontifical chair about the year 590, and died in 604. Our ignorant forefathers had a custom on this anniversary that is thus recorded:—"Some are so superstitiously inclined, as upon the night of St. Gregory's day to have their children asked the question in their sleep, whether they have any mind 'to book, or no?' and if they say 'yes,' they count it a very good presage; but if the children answer nothing, or nothing to that purpose, they put them over to the plough."

Meteorology of the Week.—During the last twenty-three years, the average highest temperature of these days has been 51.2°, and the average lowest temperature 33.8°. The number of days on which rain fell was 64, and 97 days were fine. The greatest heat was on the 9th in 1826, when the mercury rose to 68°; and the greatest cold was on the 10th in 1847, when it fell to 7°.

RANGE OF BAROMETER—RAIN IN INCHES.

March		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
7	B.	30.255 30.047	29.720 29.477	30.295 30.182	30.189 30.091	30.232 30.210	29.777 29.715	30.113 29.976	30.177 29.997	30.062 29.879
	R.	—	0.02	—	—	—	0.02	—	—	0.06
8	B.	30.369 30.355	29.500 29.416	30.328 30.264	30.260 30.195	30.161 30.102	30.013 29.777	30.113 30.029	30.262 30.068	29.918 29.810
	R.	—	0.17	—	—	—	—	—	0.02	0.02
9	B.	30.392 30.385	29.606 29.152	30.380 30.318	30.021 29.949	30.162 30.144	30.305 30.105	30.027 29.986	29.960 29.654	29.949 29.917
	R.	—	0.47	—	—	—	—	—	0.01	0.01
10	B.	30.462 30.426	30.018 29.463	30.176 30.050	29.707 29.571	30.129 30.058	30.383 30.368	30.127 29.933	29.499 29.391	30.432 30.276
	R.	—	0.01	—	0.69	0.02	—	—	0.29	—
11	B.	30.473 30.401	30.040 29.825	30.153 30.086	29.626 29.468	29.973 29.936	30.544 30.407	30.218 30.138	28.942 28.745	30.424 30.271
	R.	—	—	—	0.20	—	—	0.05	0.20	—
12	B.	30.366 30.273	30.045 29 938	29.943 29.700	29.730 29.483	29.815 29.781	30.600 30.530	30.304 30.041	28.909 28.697	30.164 30.128
	R.	—	0.06	—	0.09	—	—	0.01	0.07	—
13	B.	30.376 30.331	30.132 29.888	29.725 29.585	29.954 29.929	29.793 29.740	30.434 30.336	30.315 30.207	29.471 29.204	30.302 30.060
	R.	—	—	0.06	—	—	0.03	—	0.18	—

Natural Phenomena Indicative of Weather: *Lilies.*—Although not strictly relevant, we may observe under this head that all the lilies have their marked time of blooming: the *daffodil*, or Lent lily, early in March; the *lily of the valley* in the middle of May; the *Orange lily* at the commencement of June, and the *White lily* during mid-July. *March dust* and *May sun*, both implying a fine dry spring, have for centuries been regarded as a good omen for the husbandman; and there is no doubt of a dry spring being the usual forerunner of a productive summer. Every one knows the old adage relating to this, which values "a peck of March dust" as high as "a king's ransom."

Insects.—We have lately had the opportunity of seeing several specimens of the widely celebrated Death Watch, so named

Because, like a watch, it always cries click;
Then woe be to those in the house who are sick!
But a kettle of scalding-hot water injected
Infallibly cures the timber affected:
The omen is broken, the danger is over;
The beetle will die, and the sick will recover.

It belongs to a genus of minute beetles named *Anobium*, and the most common is *A. tesselatus*; but that which it very closely resembles, and which we shall describe, is *A. striatum*. Our drawing represents it magnified, and of the natural size. The antennæ are red, and the three last joints longer and more club-form than the others. The body and legs brown; the wing-cases greyish, and marked with slightly impressed parallel lines. These insects burrow holes in old wood; and in the spring commence the ticking noise which is so ominous in the eyes of the superstitious. The noise is made by the insect striking its jaws or mandibles against the wood, and is a call to its mate, which, if not answered, is repeated in another place. The number of ticks at once usually varies from seven to eleven, and are repeated at uncertain intervals. The insect abounds in many old houses, and may be heard during the whole day, though most noticed during the stillness of night. It will often answer to a gentle tapping with the finger-nail. The larvæ pierce old furniture, and other woodwork; and some species ravage flowers, natural history specimens, &c.

At the present season, when the judicious gardener, to protect the roots of his newly-planted trees and shrubs from the drying winds, has recourse to *mulching*, or covering the soil above them with long dung, or other substances, which will prevent injurious evaporation, the following remarks from a very judicious correspondent are particularly opportune:—

"During the last autumn, I visited the grounds of a florist who is celebrated for growing dahlias. Observing that large masses of dung were placed around each of the plants, I inquired of the person who shewed the grounds, what purposes were intended by these *mulchings?* He replied, 'First, to keep the roots cool; and, secondly, to supply the plants with liquid manure when it rained, or when they were watered by the hand.' Now, as much has of late been written on the subject of mulching, it may not be unprofitable to say a few words on the use and abuse of this practice.

"To apply myself to the first object intended by the mulching of plants, namely, 'to keep their roots cool,' it may be asked, Why should one part of a tree be kept in a cooler state than the other parts? why permit the leaves and branches to receive the benefit of the solar and atmospheric influences, whilst these advantages are withheld from the roots? Strange that persons who know that bottom-heat is necessary to induce a cutting to emit roots, should in practice admit that, in its subsequent stages of growth, the plant is benefited by keeping its roots cooler than its head. Those persons who grow grapes, and who unfortunately have the vines placed in the border, find *their great difficulty* to be when the roots are chilled by cold rains in the early part of the season, whilst the leaves and fruit are growing under glass in a temperature of, perhaps, 20° above that in which the roots are placed. Why then *voluntarily* attempt to create an almost equal 'difficulty,' by keeping the roots of a tree in the border several degrees below the temperature which the other parts enjoy?

"It is admitted, that the practice of mulching trees in hot weather greatly diminishes the labour of watering them. But then it should be considered whether this advantage is not obtained by sacrifices that more than counterbalance the benefit. In other words, that by depriving the roots of the advantages of the solar and atmospheric influences, by surrounding the tree with heavy coatings of dung, a greater injury is perpetrated than can be compensated by the diminished labour of watering. And, with respect to the benefit which it is alleged that the tree derives from the mulching, in the form of liquid-manure from the rains, &c., it may be briefly answered that, after the mulching has been exposed for a few weeks to the action of the sun and air, its nutritive properties have been already, for the most part, washed into the ground, or dissipated into the atmosphere, and the mulching reduced almost to a mere *caput mortuum;* encumbering the plant, and depriving the root of the beneficial influences of the sun and air. The occasional applications of liquid-manure would, surely, more effectually invigorate the tree, whilst the ground could in that case be kept open by the repeated use of the fork and the rake.

"But the mulching of trees has, doubtless, its uses, and very important uses too. Every tree planted in the autumn should be mulched, but for the very contrary reason of keeping the 'roots cool.' These trees should be mulched for the purpose of retaining as long as possible the solar heat imparted to the earth during the preceding season, and to prevent the roots from being paralysed by the frost; enabling them thereby, on the return of spring, to second the efforts of the head, in producing a regular and effective circulation of the sap. For if the condition of the roots and the other parts of a tree be dissimilar, the circulation of the sap must, in that case, be disturbed; and hence, probably, one prominent cause of 'green eye' in the flower, and premature falling of the fruit. Whereas, if all the parts of a tree be growing in an equable temperature, and all, as nearly as can be effected, receiving the benefits of the sun and air, the condition of the tree will then be harmonised, and a regular and healthful flow of sap in all its parts be promoted."

The florist's theory of mulching his dahlias, so justly animadverted upon by our correspondent, is a fair specimen of the reasoning powers of a large class of cultivators, whose practice is founded on scientific truths, but whose explanation of that practice is the very reverse of scientific. Our correspondent's observations deserve the attention of cultivators. Mulching need not, and indeed should not, be of a nature to exclude the influence of atmospheric heat, and we quite agree with him about the questionable benefit of enriching a border through the agency of mulching, for, at the most, the enrichment to a soil derived from the practice is merely a secondary consideration. The objects most important to be secured by its employment, and for which alone it should ever be adopted by the gardener, are to check evaporation from the soil, and to prevent it becoming wet and chilled. When the first object has to be attained, the mulch is best placed over the roots about two inches below the surface, and then the earth returned over the mulch. To exclude rain, and to retain the temperature of the soil, the mulch is best placed upon the surface, and covered with a tarpaulin or reed panels. Neither, to attain one of these desired objects, warmth in the soil, ought the mulch to be kept over the surface continually, but upon the occurrence of every sunny mild day, it should be taken off during the middle of the day, and returned about three o'clock. By such judicious attention, the heat to be accumulated in a given spot of soil will far exceed that in the surrounding soil not similarly treated.

THE FRUIT-GARDEN.

Strawberry Forcing.—By referring to page 138, it will be seen that the general principles of strawberry forcing were discussed; we are tempted again to make a few farther observations before the season draws to a close. We advised a very cautious mode of procedure at that early period as to watering, and not hurrying them; and such, at an early season, is peculiarly necessary. Now, however, some of these cautions become shorn of their weight in some degree; and the principal care now necessary will be to see that they do not suffer for want of water, or from too high a temperature. Some of our amateur friends may have conveniences for a regular succession of forced strawberries, so as to have some ripe from the time this reaches our readers until they ripen in the open ground. But this is not the case with the majority; and to those who can ill spare house or pit room we say, do not introduce any to heat until the middle of February, when the produce will be much more certain, as well as of much higher quality; then good strawberries may be gathered a month before those in the open ground.

We may now direct especial attention to a point or two of much importance, and although adverted to at page 39, and again at page 139, we may, perhaps, be excused for glancing at it again.

Watering.—We advise the use of ordinary water until the moment the truss of blossoms may be discovered just emerging from its socket; then, a regular system of manure watering may be resorted to; for unless the bloom stalk shoots with freedom, so as to throw the berries ultimately beyond the rim of the pot, there is small chance of success; not that the berries would not swell when nearer home, but that this dumpy character argues a want of power in the plant—a root action inadequate to the proper supply of the plant.

We have before, at page 140, suggested the use of guano-water; we now beg to say that a favourite plan with us—indeed, the only one we have recourse to at present, in all cases where liquid manure is wanted—is to mix soot-water with the guano-water, equal parts. Both these must be highly clarified; indeed, ours is like pale porter when ready for use. This is easily accomplished by keeping a couple of vessels at work—the one guano, the other soot. Now admitting that one ounce of Peruvian guano and one pint of soot will make a large waterpotful, holding three gallons of liquid manure, as strong as it ought to be applied to any plant when constantly used, it will be easy to ascertain how much of mere clear water should be added to a much more highly concentrated liquid manure, brewed thus for mere convenience' sake. Thus, suppose the mixture is brewed ten times as strong, of course it will require to be diluted with ten times the amount of mere water. This is our practice; and our waterpot of strong mixture will water a whole house of plants; the operator, who knows the power of his mixture, merely pouring a little into each pot of clear water, as he draws it. We do not mean to say that this is the only proper way of making manure water; we merely say it is at present our practice, and seems to answer with everything to which we have applied it; and, in the present imperfect state of horticulture, as to the bearings of chemistry on it, we must be content for awhile with rule of thumb work.

Strawberries, those rising for blossom, will at this period require almost daily watering in this way; those on elevated shelves, in airy houses, requiring twice as much as those in low pits or frames.

It is good practice to place a pan beneath the pots as soon as the truss begins to rise, especially if the pots are on an elevated shelf in a house.

Thinning the Berry.—When they "set" thickly, it is necessary to apply the scissors; thinning them out as grapes. All crippled or imperfectly "set" berries should be removed the moment they can be perceived; and as soon as a good crop of well-formed berries can be secured, all the remaining pips in course of blossoming, or just swelling off, may be cut away. But you will hinder the succession, Mr. Somebody will say: true, we shall in some degree; we shall save you the chagrin of being obliged to eat a dozen or two of half-starved berries, which would have been produced a fortnight later on the same plants, had our *present* advice not been followed. There is no real gain, however, in reserving all the late buds or blossoms after a good crop is secured; for the water necessary to get them imperfectly swelled off, will prove a deteriorator of the flavour of those colouring. It is an excellent plan with those, who, when they get a full crop, would wish to retard some of them, to remove them as soon as a dish or two has been gathered, to a cold frame or pit; here they will ripen slowly, and acquire more flavour, and a much higher colour, than they get in hothouses. We have seen fine Keen's seedlings placed on exhibition tables thus managed, which were almost black with colouring; and which have beat all competitors. It must be remembered, however, that this course would not answer at an earlier period than the present; it would scarcely be safe, for a hard frost could scarcely be kept out of a cool pit, and frost would ruin the whole crop.

This is an excellent period to make up a frame, to produce a good crop about three weeks prior to those in the open soil. A small bottom-heat of 60° to 70° would be desirable; and good strong young plants may be removed from the open ground, with good balls of earth, and immediately planted in rich soil. They must be frequently syringed, and kept rather close for a week, shading them slightly if the weather should prove very sunny. Their subsequent management will be similar to pot-strawberries, except that they may be allowed to carry a much heavier crop. We need scarcely add, that the water used must always be equal, at least, to the temperature of the structure they are in: this is a maxim that applies with equal force to every species of forcing.

Cleansing Fruit-trees.—Those who have not looked carefully over their fruits, to see if any of the insect tribes infest them, should lose no time; for strong applications are much easier applied before the leaf unfolds than afterwards. For the American blight, spirits of tar, rubbed in with a brush, seems to be the favourite remedy at present. Where trees are infested *all over*, however, we would advise a wash, applied by the syringe or engine. Soft-soap-water, four ounces to the gallon, and plenty of finely-dissolved clay, will, if applied twice or thrice, block up the rogues in their dens, and, if not totally destroy them, much impede their operations. Every portion of the trees should be soused with it. If red spiders infest them, plenty of sulphur must be added to the soap-water mixture. The same mixture, indeed, will be antagonistic to most of the insects which infest our fruit-trees, including the Coccus, or scaly insect.

Grafting.—We made so many observations in February, last year, that we need do no more at present than observe, that it is absolutely essential to success that no delay take place in the operation. We consider that the best period is that when the buds of the stock can first be perceived to enlarge; better be done too soon than too late. Of course this rule will regulate the grafting of different kinds in due succession, beginning with those which swell first. We hope our advice, in the Calendar and elsewhere, of preparing scions in due time, has been attended to; our nurserymen always like to have the scion taken off and "heeled," a few weeks previous to the operation, in order that the stock may be a trifle in advance of the scion. It is supposed, also, that the slight amount of perspiration, or loss of juices, which a scion removed from the parent-tree always undergoes, paves the way for a speedy reception of the juices of its new foster-mother

Newly Planted Trees.—A trying time is now at hand, when the appliances of good staking, fastening, shading, and mulching, will occasionally be requisite. Of course we do not suppose that every apple-tree planted in an orchard can be shaded: most people are too busy in other ways to be able to accomplish so much; but this we say, that the benefits derivable from such little attentions are of much import, and that our amateur readers who have periods of leisure, will do well to render all the assistance in their power in such cases. Mulching we however consider indispensable with all fruit-trees; this we have already pointed out in a preceeding article; as also staking. We merely advert to them here to refresh memories for the last time, as mere spring business. In fastening newly-planted wall-trees much care must be taken to have the bands loose. We never finally train our newly-planted wall-trees until the end of May, by which time they will have settled considerably; we merely sling a long and loose strip of sheds here and there, enough to keep the main branches in their place, for fear of wind waving. Towards the end of the month, if dry weather previously, a little watering may be necessary; and our practice is to use warm liquid-manure, just such as we described for the strawberries, and about 10° warmer than the soil—say about 75°.

We do hope before very long that our worthy coadjutors, Messrs. Beaton and Fish, will give their opinions on the value of liquid manures when properly applied; our friend Mr. Barnes we know is an advocate for their use, and so is Mr. Appleby.

R. Errington.

THE FLOWER-GARDEN.

Sowing Seeds: *Half-hardy Annuals.*—Sow the following seeds any time before the middle of the month, if you have the convenience of a slight hotbed; but, if you never reared such things before, it is better that you should wait to the end of the month, for all the seeds that I shall mention to-day will do if they are got in before the end of April. The only difference is, that they will be later in coming into flower—but not in the proportion of the time that may be lost in the spring. I have sometimes noticed that seeds out of the same packet sown at an interval of six weeks in spring, have flowered within twelve days of each other in the summer. Much depends on the season, and the convenience one has to rear them; and, no doubt, much depends on the skill of the manager. In general, I would not advise new beginners to attempt too much early in the season, for we all know how tiresome it is to lose things after we have taken all the pains we can with them; and without some considerable practice, very little seedlings are apt to be lost through very slight and unforeseen causes.

Soil.—For annuals, and indeed for most other seeds, I put little stress on the kind of soil for them; for this reason, that as soon as the seedlings are large enough to be handled, they ought to be removed into other pots and transplanted singly; and this will be necessary in about three weeks, or a month at farthest, after sowing. The only thing which I can think of now, to give strong advice about, is this: if I have a packet of very choice seeds which, for various reasons, I must trust to a young man, to whose department the seeds belong; as, in large places, this and all the rest of the work is divided among so many foremen—every one of them looking after his own things, and is responsible for them; well, suppose this young man has not had much experience yet in managing seedlings, I would caution him particularly not to use any leaf-mould, or soil with which manure has been mixed—two very good things in their way, and much used with our common seeds; but knowing that the young plants from this packet of seeds come up very slender, and are peculiarly liable to damp-off while very young, and knowing that enriched soil is more favourable to damp than very poor sandy soil, I charge him to guard against this, and to use the poorer compost; and for the same reason, knowing that very poor soil is more favourable to bring the seedlings on firm and hardy, I would advise all new beginners to use nothing better for their seed pots. The rest I shall notice under each head or name as I proceed.

Mesembryanthemum Pyropœum, or Tricolor, as it is oftener called, is one of the most dwarfish and prettiest little annuals I know, and not at all difficult to manage. It is one of those things we call succulents, and belongs to a family of Cape plants. The Ice plant is of this family, and there are I know not how many hundreds of different kinds, or species, of this one family, all of them living on the most scanty food in the barren plains, and on rocks in South Africa. The largest book with coloured figures of plants I ever saw, was entirely devoted to this single family, by a German prince (Prince Salem Dick); and I am almost sure this annual is the prettiest of the whole. Therefore, it is surely worth growing; and a sixpenny packet of seeds would fill a good sized bed. It is the best thing we have to fill a very shallow fancy vase, for it will flower in profusion if the soil is three inches deep. It will grow equally well on a rich vine border, flowering for two months; and might be had in flower from Midsummer to the end of September, by sowing it now; again about the middle of April; and a third sowing about the tenth of May; but those sown in March do best. For growing seeds of choice things like this, five-inch pots are best. They are not too small to be always wanting water, nor too large to hold the soil long wet after watering, and so encourage dampness among the seedlings. All seed pots should be well drained; and for almost all the finer annuals the pots ought to be watered before the seeds are sown, and not after, for small seeds are very liable to be displaced by the first watering before the soil is settled round them; and by watering the pot first, then sowing the seeds, and pressing these down very even and gently after they are covered, the seeds get imbedded in their proper places: the covering of dry mould, which should not be deeper than just to cover the seeds, will suck up part of the moisture from around the seeds, and the whole surface is then in that comfortable condition which we call "neither wet nor dry." If the pots are put by in this state, and kept in the dark in a slight hotbed until the seedlings begin to appear, very little water indeed will suffice; and the less of it given to seed pots the better, provided the pots are not allowed to get too dry. As soon as this and all other half-hardy seedlings are well up out of the soil, they ought to be inured to the light and air at once, and be brought out of the seed bed in a few days, and placed in some warm, dry situation, away from draught, for the first ten or twelve days; but early in the spring much depends on the weather. Whether the weather be favourable or not, however, they must not remain in a hotbed longer than I stated, unless it is a very slight one indeed, and that large portions of air can be given; but if this can be admitted, it would be the best possible way to manage them for the first six weeks, or until they are strong enough to stand in a cold pit or the front of a greenhouse.

Mesembryanthemum Glabum is a very old-fashioned annual of this class, but rather a pretty one if well managed. It has large, lemon-coloured flowers, and lasts a long time in bloom. One sowing of it any time in March will be enough, as it is an autumnal flowerer. The same treatment as for the last will do for it.

Clintonia Pulchella.—The pretty Clintonia is also an elegant but very dwarf plant; just one of those gems which all lovers of flowers like to see in their season. The flowers are blue and white, and although I range it with half-hardy things, it is in reality as hardy as a crocus, being from North West America. Nevertheless it is well worth early nursing as a tenderling, after the manner first directed.

Rhodanthe Manglesii, or Capt. Mangles' Rose-flower, is another of these little gems, and the last of them which I shall mention to-day. It is very like an everlasting flower, and is nearly one in reality. The same treatment will bring this forward also, indeed, I grouped them together on this account.

D. Beaton.

(To be continued.)

GREENHOUSE AND WINDOW GARDENING.

Epacris—*contrasted in some respects with Erica.*—The different species of the beautiful family of the Epacris are peculiarly fitted to suit those with limited means and space, and who may yet wish to possess as great variety as possible of flowering plants. Many of them, such as the crimson *Impressa* and the snow-white *Nivalis*, with their congeners and varieties, flower freely during the winter months; and others, such as *Grandiflora* and *Miniata*, with their reddish crimson and vermillion flowers tipped with white, bloom in spring and early summer, and almost at any time, according to the diversity of treatment they receive in the matter of potting and growing the young shoots. They cannot be very successfully used as a window plant in a sitting-room, unless for the period when the plant is fully in bloom, as, like their near neighbours in appearance, the heath family, they dearly like plenty of fresh air. The closish atmosphere of a sitting-room, however, if not kept hot, will not affect them injuriously nearly so soon as it would the most of the ericas. The difficulty of growing the latter well, even in a small house where geraniums, cinerarias, calceolarias, fuchsias, &c., are grown, arises from the fact that the moist atmosphere in which these at one time or another delight, is the most fruitful cause of producing *mildew* among the heaths, which would soon impair the beauty of, if not totally destroy, the finest specimens. This dreaded enemy of the heath grower seldom or never makes its appearance among epacrises—their hardy leaves not affording a tempting enough feeding and reposing place for the fungus; and hence we find that *they* flourish in an atmosphere and a temperature that would be ruinous to the erica family, accommodating themselves, in many respects, to the treatment given to the soft-wooded plants referred to; though even then prudence would dictate the necessity of keeping them together where the greatest quantity of fresh air could be given.

We are not aware that this distinctive feature of the two families has been greatly noticed, though of considerable importance to the amateur; nor do we think we can fully and satisfactorily account for its existence, though with respect to the fact there can be no doubt. The heaths cultivated are mostly natives of the Cape of Good Hope, or hybrids raised from them. Their natural localities there are the tops and sides of mountains, and the fissures and clefts of rock, where the soil is scanty, and chiefly consisting of the decaying debris of the rock, and vegetable matter which had been growing and decomposing for centuries. Their position removed them from the scorching heat of the plains, and, unless in the rainy season, exposed them to a dry, clear, coolish atmosphere. Unless, therefore, when starting into free growth, after the free-growing kinds have been pruned after flowering, *coolness* and *airiness* are the essential elements of success—elements which demonstrate the importance of giving heaths, where practicable, a place for themselves. The epacrises, on the other hand, may be said to be the heaths of Australasia. No ericas are found there, and no epacrises found at the Cape. The name (from *epi* upon, and *akros* the top) is designed to give us an idea of the localities in which they are found—the tops of the mountains. As the climate there, in many places, in several respects resembles our own—and as, at least, the atmosphere near the coast will be less *dry* than in the interior at the Cape—we may thus see *one* reason why the epacris will submit to variations of temperature, and a degree of closeness and humidity in the atmosphere which would soon destroy a heath.

"But then," says a young friend, "how am I, without glasses and much knowledge of botany, to know an epacris from a heath? Uncle Richard took me the other day to see what he called a beautiful crimson heath, and it was exactly the same as this, that you call the Epacris impressa; and really the leaves and little tubular flowers look exactly like many heaths." Without going into the depths of botany, because there we should be afraid of getting overhead ourselves, we shall, without noticing other great distinctions, merely advert to the difference in the leaves and flowers. The leaves of the heath are generally *opposite* each other, or in a *whorl* round the stem. The leaves of the epacris are not opposite, but alternate. Again, the leaves of heaths have generally netted veins, similar to our hardy trees; the leaves of the epacris have generally their veins more longitudinal in their character, extending from the base to the apex; resembling more, in this respect, the leaf of a leek than the leaf of a cucumber. The monopetalous tubular blossom of a heath is divided into *four* segments at its point, and contains within it *eight* stamens, inserted at the base of the corolla. The segments of the blossom of an epacris are *five*, and there are *five* stamens, not *free*, but adhering, for the greater part of their length, to the inside of the corolla.

Culture.—Here the first thing to be considered is *soil*. This should be the same as that used for the generality of heaths, namely, sandy turfy peat, using it as rough as possible; proportioning, however, the roughness and the size of pieces to the size of the pot, and the large or small nature of the shift given. For instance, pieces of the compost, the size of marbles, may be used in a pot four inches in diameter; but in a pot of twelve inches, the pieces may range from the size of marbles to that of a turkey's egg. Pieces of charcoal will also assist in keeping the soil open and also be useful for drainage.

Selection of Plants.—Where fine future growth is desirable, very young healthy plants should be chosen in preference to those which are older and somewhat stunted in their growth. A plant, with its pot crammed with roots, may be made to flower successively where it is, but it is not to be depended upon for repotting and starting afresh into vigorous growth.

Potting.—The pots should either be new or perfectly clean outside and inside, and porous rather than hard. Before potting, be sure that the plant has been thoroughly watered, and then allowed to drain. If potted *dry*, nothing will again thoroughly wet the ball, but placing the pot in a tub of water, which, in any case, and especially when the one-shift system is used, would reduce the new unappropriated soil to something of a marshy state. In potting either upon the continuous, or the one-shift system, we consider it preferable to adopt the first until the plants have been placed in five-inch pots. The pieces of charcoal blended with the soil, independently of acting as *chemical* absorbents, will act *mechanically* as well, and be much lighter than pieces of sandstone. The roots should reach the outside of the ball, after passing and surrounding the lumpy pieces, but should not get *matted* there to any extent before being shifted. The surface soil should always be fine, or too much air may enter. The same attention must be given to the end of the chapter. On the one-shift system, a plant is at once transferred from a five-inch pot to one of twelve inches or more, or less; the soil, of course, is used much rougher, and more attention must be paid to drainage, and rapid growth after being shifted. Anything like a clogging up of the drainage is ruinous. Above the broken potsherds should be placed a layer of moss, and some small clean-washed pebbles, or broken charcoal sifted, to take out the dust. The moss, if fresh, will not only for a long time keep the drainage clear, but will act as an *equaliser* of moisture. There is no necessity for elevating the ball in the centre of the pot. By the common method of potting, your plants will grow more slowly, but every year will be improving; by the other, you will obtain a fine specimen in a third of the time, but it will sooner begin to deteriorate.

After-management: *Watering.*—Like heaths, no plants suffer more from being allowed to get very dry. "Strange, and they natives of such high and dry places." No! not so strange after all. *There*, however meagre the soil, the fibres had next to unlimited range, and in the driest and clearest weather the moisture raised by evaporation and capillary attraction from the subsoil and the rocks beneath, would supply their hair-like fibres as it passed them. *Here* we give them no such advantages when confining them in a pot, and setting them, it may be, on an isolated shelf. When potting on the old system, the general principle in watering must be attended to—namely, water thoroughly, and give none until again wanted. This same principle followed out in the one-shift system, would render *failure* more than problematical. The great rule *here* is not to *potch* the new soil with water, until the roots are getting into it.

Potting being done generally in spring, or early in summer, the plants in both cases, but especially for the one-shift system, should be set in a close pit, to encourage growth; giving and increasing the air only as that has been effected. Shading at first to keep down the temperature when the sun is hot, and syringing the plants and the walls of the pit, thus imitating the rainy season in their natural localities; increasing the air and full exposure to light, as the growth approaches completion; removing then the sashes entirely, and allowing the plants either to stand in the pit, or be placed in any sheltered situation, where they can stand full in the sun, and yet be protected from drenching rains; taking care, however, to protect the pot from full exposure to the sun's rays, either by plunging it, or setting it inside of another of larger size, that the fibres within be not scorched; removing them inside the house before danger of frost; giving them the lightest and airiest position; when in winter and spring they will reward you with blossoms nearly as numerous as the leaves on the well-ripened shoots. When done flowering, cut the shoots back; keep the plants rather close until they break afresh, after which the general routine must again commence. There are numerous species, and some beautiful hybrids. We have already indicated what we consider the four most beautiful species.

Propagation of approved kinds, by cuttings of the points of the young shoots taken off in spring, and placed in in suitable soil covered with white sand, and inclosed with a bell-glass. The young shoots, just as they begin to break, with a small heel of the older wood, strike freely, either with or without a bed with bottom-heat. When struck, plant three or four round the sides of a three-inch pot. R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

PLANTS REQUIRING PECULIAR TREATMENT.

Cypripedium.—This genus recommends its species to the favour of the cultivator on three accounts. first, because they all produce handsome flowers that last a considerable time in bloom; secondly, because several species have leaves prettily marbled; and, thirdly, they are easily cultivated and propagated with the peculiar treatment we are about to describe.

Cypripedium barbatum (Bearded Venus's Slipper).—Sepals and petals brownish purple; labellum whitish, with reddish stripes; leaves mottled.

C. purpuratum (Purple Venus's Slipper).—Very like the former, but the purple deeper, and labellum more clearly marked; leaves more vividly mottled.

C. insigne (Noble Venus's Slipper).—Sepals and petals yellowish green, shaded with red and spotted with brown, the centre petal has the end tipped with pure white; the labellum is orange, tinged on the outside with rich brown; leaves green.

C. venustum (Beautiful Venus's Slipper).—The flowers are yellowish green, tinged with bright red; the outside of the labellum is of a light greenish brown, veined with dark brown; leaves mottled.

Cypripedium Lowii (Low's) and *C. caudatum* (Tailed Venus's Slipper) are two species introduced by Messrs. Low and Co., Nurserymen of Clapton, from Borneo. The latter is very curious and handsome, each sepal and petal being lengthened so as to have the appearance of tails; hence its specific name. We have only seen dried specimens, so cannot describe the colours. We have been told that the *C. Lowii* is not very handsome. (There are several species natives of N. America, and one even is found in Britain, all worth growing; but as they do not require hothouse, or even greenhouse treatment, we shall not mention their culture in this place.) They all belong to that division of orchids we have named "terrestrial," and grow best in turfy-loam, fibrous peat, and leaf-mould, in equal parts, with some coarse river sand to keep the compost open. March is a good time to pot them; let the pots be well-drained. They love plenty of water from the potting time till August, but from thence to March again only just enough to keep them from flagging. We have found them to do well in a pit during the summer months, without any shade, and with but little air; in this pit they grew strong, produced fine, highly-coloured leaves, and flowered remarkably well the spring following. We know but little of their native *habitats*, whether they grow on plains, in thickets, or other shady places, but from the fact of their thriving well in an unshaded pit facing the south, we should suppose they are found in open places in their native country. They will grow and flower well even in a common stove, but not so well in a greenhouse, excepting during the summer months. In places where there are vineries, or pine-stoves, these plants may be set upon the kerb-stones, or on shelves, or on a platform over the pipes, or in any other convenient place, among such plants as gloxinias, achimenes, gesneras, &c., where they will grow and flower well, and be an ornament and a variety among the other plants. In fact, numbers of the terrestrial species of orchids would be benefited by being placed in such situations; more air being required for the regular inhabitants of such houses than is usually given, or is prudent to give, to the orchidaceous house, and these terrestrial orchids requiring it, they are proportionably benefited thereby. Indeed, most orchids when in bloom would last much longer in flower if they were removed into the cool stove whilst in that state. Barkerias, Cattleyas, Lœlias, Dendrobiums, some Epidendrums, and other Mexican species, will bear this treatment, but we would not advise the removal from the orchid-house of such species as come from the hot jungles of Java, Borneo, and Hindostan,—such, for instance, as all the species of Ærides, Saccolabium, and Vanda. These, having no pseudo-bulbs, and producing frequently fleshy roots in the moist air of the orchid-house, would suffer much by the change from a moist atmosphere to a comparatively dry one; we must, therefore, be content to bloom them in their own house.

FLORISTS' FLOWERS.

Carnations and Picotees.—The time has come to put these flowers into their blooming pots. We are now busy potting our winter stores—that is, removing them out of the pots they have been in through winter into the blooming pots, 12 inches wide at the top, and 10 inches deep. At page 119 of vol. i., every particular about potting, soil, pots, &c., is given; and to that place we refer our readers. For the benefit of such as may not possess the first volume, we will as briefly as possible give the substance of the directions. The soil we prefer is—loam, made of turf from an old pasture, three-parts; very rotten dung, one-part; rotten leaves, one-part; one-sixteenth soot, and one-sixteenth river sand. Mix and turn over once a month for a year before using. If old pots are used, clean them well in hot water; drain effectually, and pot firmly, rather deeper than the old surface. Place them under shelter of some kind for a month longer, previously to putting them on the blooming stage, which is described on the 110th page of the first volume of The Cottage Gardener.

The Old Clove Carnation.—Though this is not strictly a florists' flower, yet on account of its beauty and agreeable fragrance there are few florists that do not grow a few pairs of it—at least, they did formerly; but in the rage for novelty it often happens that an old deserving flower is thought but little of, and is neglected. This is the case with the clove carnation. This variety, in its *true* state, is a good formed flower, of a dark crimson colour, with a rose edge, by which is meant an edge without serratums or teeth; the petals should have the outermost edge perfectly smooth and flat. Now this good old variety is nearly lost. We shall refer to this subject again shortly. T. Appleby.

THE KITCHEN-GARDEN.

Routine Work.—A busy and interesting season has now arrived, when both energy and perseverance are required with regard to cropping, cleanliness, and the establishment of good order, as well as some degree of forethought, as to what crops are to succeed one another on each spot of ground. Previously to sowing and planting at this season, encourage the growth of the early *cabbage* by frequent surface-stirrings, and the application of liquid-manure; the earliest crop will be taken off in time for the second planting of *kidney beans*. Let the cabbage-seed sown be of the best kinds, such as *Atkins' Matchless*, *Nonpareil*, *Shilling's Queen*, the *Early York*, and all such moderate-sized growing kinds which are quick in coming in, and produce a nice compact head, with but few outside leaves. Expel all starters from the main crop as soon as discovered, and make out such vacancies with good strong plants. Plant the winter saved plants of the *Red Dutch*, and sow a little more seed also for the pigs and cattle, or even for the next autumn and winter for culinary use. The *drum-head* (also termed *flat pole* by some) or *cattle cabbage* is a good variety for this purpose. Plant out also the winter stored plants.

Cauliflowers.—Sow little and often; plant out in succession from the winter store plants, and encourage those now growing under hand-glasses with applications of tepid liquid-manure after the surface of the earth has been well stirred, taking care as the plants grow on, to earth up and raise the hand-lights, so as to afford room enough for the leaves to grow without becoming crippled. A small sowing of *Cape brocoli* and *celery* should also be made, as well as *celeriac*. Sow also *spinach*—little and often, *underground onions*, and the store bulbs of the *two-bladed onion*. Those transplanted from the autumn-sown beds should be looked to, as well as *shallots* and *garlic;* observe whether any have been removed by worms or frost, and if so replace them, giving, at the same time, the whole surface a good stirring between them. Take care that the ground for spring-sown crops of *onions*, *carrots*, and *parsnips* is now speedily got into good condition, and let the *onions* and *parsnips* be sown in good order in full crops before the 21st of March. *Early carrots* should be sown now, but the full crop of large-growing late kinds are best deferred until the last week of the month, or the beginning of April. Everything in the shape of refuse lying about should at once be charred for drilling in with the seeds. Our practice always is to drill everything, as we consider it of great consequence as far as regards the after-management, the thinning, surface-stirring, &c., all which is afterwards performed with much greater expedition and economy. Plant out in succession the winter-stored *lettuce*, and prick the early spring-sown, as soon as they can be handled, on a little warmth, or in a well-protected situation. *Globe artichokes* should have their winter's protection removed, the small, weakly suckers at once taken away, which will encourage those intended for producing the season's crop, as well as those intended to be used for making new plantations next month. Sow *parsley* in full crop, *angelica*, *salsafy*, *scorzonera*, *radishes*, *leeks*, and *rampions*. Look to the herb-bed. Sow *chervil*, replant *chives*, *pot-marjoram*. Plant out *lavender*, and put in fresh cuttings. Top-dress the *mint-bed*, and make fresh plantations as soon as the shoots are two or three inches in length. *Tarragon* requires the same treatment. Sow *thyme* and *winter savoys*. Plant out *Lemon thyme*, *chamomile*, *fennel*, and *hyssop*. Layer and peg down the last year's wood made by *sage*, and make new beds from the last year's layered plants.

Framing Cucumbers.—Maintain a brisk kind of heat; air freely in the fore part of the day; and shut up early, sprinkling down the interior of the structure with tepid water, sometimes mixing a little manure-water with it, just to charge the atmosphere with ammonia. Stop or pinch out the points in due season of all young shoots which may show fruit at every joint; all young plants stop at the first joint; then allow them to make three joints previously to stopping again; on their next breaking they will most likely show fruit. Sow in succession, so as to keep up a sufficient stock of young plants as may be required.

Frame Potatoes, that may be at this season freely growing, should be examined, to ascertain whether they are getting too dry; if so, apply tepid water, but by no means be too liberal in its application, as it might be likely to make the tubers close and watery, and be an encouragement to disease, should it appear. With us, up to the present time, the early crops of potatoes are very healthy and clear from any disease.

Rhubarb.—This very useful vegetable may be forwarded at least a fortnight, by merely inverting good large flower or sea-kale-pots over each crown. Search out the crowns with some care, so as not to injure them, and finger them round well, to see that there are no slugs in any crevices or corners; if any are found, give a good dusting of quick lime, and on with the pots immediately. Advantage should be taken of any dry hour in the day to do such sort of work as this.

Peas.—The present is a good time for sowing a row or two of any of the tall *Wrinkled Marrowfat peas.* I have generally found it a good plan to sow these Knight's tall-growing peas in solitary rows—that is, a row here and there about the garden; the plant is the more open to light and air, and is, consequently, much more productive. Neither is there so much harbour for the sparrows to secrete among them, as when sown in parallel rows over a whole quarter together.

Broad Beans may still be planted in full crops, or a few rows as a succession to the principal crops which were planted in November.

Asparagus Beds.—The spring dressings should now be attended to; take the digging-fork and carefully fork them over; break the soil and manure it well up together; that is, give plenty of *labour*, but be careful not to injure the crowns in so doing. Pick out all sticks and stones, as it often happens that such matters come in with the manure. If you particularly wish to finish the beds on the same day, do so; but if not, as in some heavy soils, the beds would be as well, and perhaps much better, if forked up about the first week in March; breaking the earth pretty well, and then letting them remain so for a week or ten days; then, on some fine day, rake them off neatly, raking the refuse into the alleys. The beds being made complete, the refuse may be forked in, in the alleys, the whole being made neat, and a row of *lettuce* may be planted along the centre of each alley. J. Barnes & W.

MISCELLANEOUS INFORMATION.

OUR VILLAGE WALKS.

(No. 22.)

It is very cheering once more to see the cottage-garden and cottage-allotments in activity, and daily increasing in interest and beauty; but I miss the potato—or rather, I should say, I miss the ground that used at this season to be waiting for its accustomed crop. The cottager has patiently planted his potatoes every year since the fatal disease attacked them, hoping that he might rejoice still in a fair return from this most valuable root; but this season he seems to have given up the attempt, or the seed was too scarce and dear to be procured. Lines of light, delicate green now fill the narrow strips of the allotment ground; very few patches are left unoccupied; and the summer beauty of the gardens will consist chiefly in the waving corn, and thick masses of swedes, instead of the rich foliage of the neatly-hoed potatoes. The loss of this root has been seriously felt by the poor; it has fallen heavily upon them, and has deprived them of one of their principal sources of profit and enjoyment. Bread is allowed to be the staff of life; but bread alone—merciful as is the gift—is not so nourishing, so comfortable to the poor, as a dish of hot potatoes. They seem to warm and satisfy the stomach more than a crust of dry bread, which, in the district where I live, is the chief food of the labouring classes—"and," as many, many have said quietly and unrepiningly, "not enough of that." The potato disease bears the impress of God's hand, deeply and clearly; it comes immediately from Him. Men have tried unweariedly and scientifically to discover its origin; they have endeavoured to assign this reason, or that cause, but in vain; it is not this or that; it stands boldly and awfully before our eyes as one of God's "sore judgments;" and the *poor* view it as such. They set us a bright example. Science, learning, and unbelief, sometimes walk hand-in-hand, and lay subtle traps for the "wise and prudent;" but the poor look directly to the hand that "gives them their food in due season," and if it fails, they know from whence the affliction comes. Were it not for this firm conviction, how much we should lament for the privation that has befallen the people! But let us remember the declaration of God himself, when "his arrows went abroad" among the Jewish people: "Your iniquities have turned away these things, and your sins have withholden good things from you." This is the secret of a nation's adversities—of the famine—the pestilence—the mildew—and of all the troubles and evils that befal the people. Let *us* "hear the rod, and who has appointed it." Let us humble ourselves before the just chastening of an Almighty Father, and in these days of pressure, of doubt, and of perplexity, let us look to *Him only* for deliverance.

The way in which the poor dress their favourite vegetable has always been a subject of regret to me, because it is so difficult to persuade them to alter their long-established habits, and do anything in a way in which they were never used to do it. If you see the lid removed from the large black saucepan boiling on the fire, you will find the water bubbling over a heap of potatoes, lying hidden beneath the flood, soaked and sodden. When the water is poured off, and the potatoes placed in the dish, they are swimming in liquid, and cut open like pieces of soap, instead of looking dry, floury, and enticing. A dish of "laughing" potatoes is seldom seen in England—they are drowned in water; and are as unwholesome to the stomach as unpleasing to the eye. Potatoes should never be peeled before boiling, but placed in the pot in their skins, with only a little water at the bottom, just to prevent the lower ones from burning, and to produce steam. Cover them with the lid, and let them steam till they are soft. When a fork will pass through them, place the pot by the side of the fire, remove the lid, and let the steam pass off. In this situation they will keep hot till they are wanted, and will then be floury and wholesome, and ten times more agreeable to the taste. I wish I may induce some of my cottage readers, who still possess, or can procure them, to dress them in this way, and try if they are not nicer and more wholesome both for themselves and their children, who are generally so fond of potatoes as to eat them whether good or bad; and when such lumps of indigestible food are swallowed, with little else to afford nourishment, weakness and disease naturally ensue. In Guernsey, the lower classes steam their potatoes in a large open brass pan, called in their patois a "bashin." They put a very little water in it, about a large teacupful, then the potatoes, and then two or three large cabbage-leaves are laid on the top. This is placed on a low fire after breakfast, where it remains steaming slowly till dinner-time; and beautiful is the sight when the leaves are removed, and the mealy potatoes bursting from the clean brown skins appear done to perfection. How often in rambling excursions through that lovely island, has a dinner of these fine vegetables, with a rasher of bacon, been eaten in one of its exquisitely clean cottages—and a more excellent meal need never be desired. I have known many attempts made to persuade the English cottager to follow a better plan, but always without success. When articles of food are few, does it not seem of consequence to prepare them in the best and most profitable way? No more fire is required in the one case than in the other—no more trouble or expense; yet in go the poor potatoes day after day, swallowed up in a saucepan brimful of water, in spite of all that can be said.

It is a remarkable circumstance, that among the allotments in my neighbourhood, where the potato disease prevailed to a great extent, one or two of the cottagers were singularly exempt from its attack. In the case of one tenant in particular it was very striking; on each side of his allotment the crops, in common with those of the other cottagers, totally or partially failed, but the potatoes on his land never failed; and he has told me that since the disease has been known, he has never lost more than a bushel out of any one crop, and the two first years not more than half that quantity. Last year, his strip of ground still yielded its usual supply of fine healthy roots, but it will never again gladden his eyes, and furnish his winter store. He is at this moment closing a life of hard labour, and joyfully awaiting the summons to a better world. He has often assured me that his seed, and his mode of tillage, were the same as his neighbours' in all material points. He loved his land dearly, and cultivated it with the utmost care and neatness; creeping down to enjoy the sight of it long after his infirmities disabled him from work. But he used to acknowledge, with tears of gratitude, the mercy of God who spared the fruits of his ground when others withered and died; and he devoutly gave God all the glory.

It is cheering and delightful to see a devotional spirit in the poor. All classes and all professions depend equally on God; for His hand *only* withholds them, moment by moment, from destruction; but the humble tiller of the ground, the poor, hard-working labourer, seems to stand peculiarly close to the outspread hand of God. Between the soil "wet with the dews of heaven," blessed and made fruitful by "the Lord who giveth the increase," and the hand that plants and sows, there is no intermediate agent; it seems as if the agricultural labourer worked, as it were, hand to hand with the Lord of heaven and earth. This thought should give the poor man a double interest in our eyes, and a solemn one in his own. He should *walk*, as well as work, closely with God. A copious blessing is promised to him who fears God and keeps His commandments—who "keepeth the sabbath from polluting it, and keepeth his hand from doing any evil." If the cottager would consider this, and search the Scriptures daily to hear what the Word of the Lord reveals, he would not the less diligently plough, and thrash, and labour for his bread—he would not the less enjoy his lowly roof and humble fare, or be deprived of any of the lawful gains and pleasures of his self-denying life: but he would be blessed in his person, in his family, in his basket and his store; his life would be full of peace, and his hope full of immortality! And let us remember, that the poor and the rich are alike included in the blessing and the threatening of the Lord—the poor shall not escape nor shall the rich be spared: "there is no respect of persons with God!"

HEATING OF HOTHOUSES.

No. II.

HOT WATER APPARATUS.

RESUMING again the subject of hothouse boilers, I think I said sufficient condemnatory of all those toy-looking things which we have so often urged upon us as models of economy, in the way of fuel, &c. We must now consider what description of boiler is best adapted for the required purpose, as well as other particulars regarding its fixing, &c., &c.

It is a well-known maxim, that the greater the surface of boiler exposed to the action of fire, the quicker it is likely to heat (hence the many varieties we have all aiming at that object), but that rule, like many others, is liable to exceptions, and unless the fire burn briskly, it is vain to think of it soon heating the apparatus; and if many intricacies impede its progress, it will not burn freely; consequently, the shape of a boiler ought to be so qualified as not to oppose too many obstacles in the way of its ascent; yet, at the same time it ought not to escape out at the chimney without having performed the duties required of it. There are several modifications of the old square boiler, more or less arched underneath, called by the different names of tile-backed, ridge or saddle-backed, and differing very widely in their capacity. The latest or most improved, being on the under side a semicircular arch of perhaps 18 inches in height, and somewhat less in width, while the top or outer plate of the boiler is of a similar shape, leaving the space between the two about 6 inches in depth; the interior height of the arch is ample room for fire, which is fed in by the door, as all fires ought to be; and as it will be seen the top and both sides are exposed to its action, independent of its being carried round it afterwards, that we may fairly suppose that fire to do its duty without wasting any material portion of its heat. A boiler of this description properly fixed, and subject to certain regulations we shall just now mention, will be most likely to serve the amateur's purpose: its simplicity, ease in attending to, and not liable to get deranged, are strong recommendations in its favour; and one I had the management of for some years never once deceived me, that I can recollect of. Nevertheless, there is another very good acting boiler, something in shape like a tumbler glass, deeply fluted at the sides, called, I think, Burbridge and Healey's boiler, that I have found to do very well also. Everything depends on the arrangement of the fire; the shape of the boiler being only a secondary consideration. We may therefore sum up by remarking, that whatever description of boiler you select, by all means let the fire-box be sufficiently capacious—it is false economy to be told you must have the space so confined, that the coke or whatever you burn, should always be touching the bottom of the boiler; we grant the heat imparted may be greater, but it is at a sad sacrifice of time: the fire burning so indifferently, so often requiring to be looked at, and at nights there is not room to put sufficient fuel on to serve the number of hours which it ought to do, that the little saving there may be in firing in the one case, is lost in a tenfold manner by the extra trouble it gives.

We shall now consider how the boiler ought to be connected with the heating apparatus in the inside, which is a matter I think too little attention paid to. As we are told, on undeniable authority, that water on heating rises to the surface or highest level, then floats away, or rather is impelled to do so by the efflux behind it, keeping up a continuous circulation, and finally finding its way into the boiler again on a lower level than the one on which it started from; now this very circulation is the very thing we want, and yet how many impediments do we see thrown in its way. In the first case, I have seen an excellent contrived boiler placed so low, that the water had to ascend three feet before it reached the level of the series of pipes it was destined to flow into, and that ascent an elbow-turn; and some five or six feet more was compressed in a pipe not more than two inches bore, when it was ejected into a series of pipes containing, collectively, at least ten times the area of borage (if such a term be excusable). Now, I think it cannot be denied but there was a sad waste of power; but as it needs no demonstration to shew what an impediment was thrown in the way of a good and free circulation, it is scarcely necessary to add, the return pipe was the same size. Now, the greatest number of heating apparatuses are constructed as above, differing only in degree; and I cannot but wonder how ingenuity should tax herself to heat the boiler in the quickest possible manner, and then keep a great portion of that heat by placing a formidable interruption in the way of its entering the house. As a remedy for such a state of things, we may state that the ascending fluid ought to have a pipe as large as the whole of these, taken collectively, it is intended to serve, and that its onward progress ought not to be impeded by any abrupt turning,—if turning there must be, let it be a lengthened and gradual one, so that the heated water may flow with an uninterrupted course the whole of its rounds, and let its return to the lower part of the boiler be also in a capacious pipe.

When the nature of the place will admit of it, we would advise the boiler not to be much below the level of the upper tier of pipes inside—in fact, we do not see there is any reason why it should be lower at all. The first-constructed hot-water apparatuses were something above the pipes inside the boiler, lid to take off, and several lids or raised portions of the upper tier of pipes inside the house, which lids it was customary to take off when a moister heat was wanted; and as the top pipes were exactly on a level with the water in the boiler, the heated particles of water rising from the bottom, or part over the fire, had only to rise to the surface, and float away into the upper pipes, which, as we said, were level with it. The beauty and simplicity of that system has, I think, never been excelled; when the fire was applied, it was only necessary to go into the house, take off one of the lids of the pipes, and look in and witness the current always in one direction. I may observe, it was the opinion in those days that the upper pipe ought only to be about two-thirds full of water; the circulation being quicker. I need hardly add, my opinion at the time was also to the same effect; and I have often wondered why the principle at first laid down as to heating by hot water should have been ever departed from, as I know of nothing which has improved so little; in fact, I do not hesitate to say in many instances it has retrograded.

As it is not our intention here to enter into the details of the interior arrangement of pipes, which is often regulated by circumstances, we will confine ourselves to general rules, by saying, do not let your pipes be too small; and, if possible, do not let them be buried in the paths of the house; in plant-houses it is difficult to have them otherwise, yet they might be contrived to run by the wall in some way or other. Make as few abrupt turnings as you can help; and if your house be lofty, or large, do not pinch the pipes in number. See that the joints are good and secure, and we leave the arrangements of them with you, as so many circumstances interfere in their direction, that it is useless to deal with any thing than general principles.

As the above has been written solely for the guidance of the amateur, many of whom may be obliged to intrust the heating of their plant-houses, &c., to a servant not being a practised gardener, I have entered more freely on the matter. In my next, I will give my opinion on the much despised, yet ever useful, smoke-flue, with its various bearings, as a mode of heating hothouses. S. N. V.

MY FARM-YARD.

The animals about which I am now going to write are certainly not the usual inmates of a farm-yard; yet I think a few remarks on *goats* and *rabbits* may not be out of place, nor uninteresting (and I hope not unprofitable), to some of my cottage readers.

Very often, in passing the heaths and commons which abound in many parts of England, it has been a matter of surprise to me, that the cottager who cannot afford to buy a cow does not possess a goat. The rocky mountain, the bare common, the "blue heath," which to the eye of the *dairyman* offer nothing tempting—nothing, in fact, but starvation—to the *goat keeper* have each and all great attractions; for goats will live, and thrive too, where any other animal would starve. Their appetite very much resembles that of the pig's, being by no means dainty; in fact, few things you can offer them come amiss. In the summer, of course, they require nothing but the natural herbage; but in winter, when the frost has dried up the short grass, or the snow has completely hidden it, they will require something to be given them after each milking; but, however severe the weather, they may be allowed to roam about during the day, but at night should have some shed to shelter them. Furze, which is often very plentiful on commons, if chopped fine, is very good food for them, and they will eat it with avidity. Potato peelings, refuse hay, chopped straw, and roots of any kind, they will thrive on. If properly trained, and kindly treated, they cause but little trouble; returning punctually at the usual milking hours. The goat does not give much above one quart of milk a day; but that is so very rich that it bears, and is improved by, being diluted with water. It is considered very nourishing, and particularly suited to young children and invalids.

The goat usually produces two kids at a birth, sometimes three. The female should not be allowed to breed till eighteen months old. If good milkers, they give milk for ten months together; but, of course, as with the cow, this differs with different goats, some becoming "dry" much sooner than others. The flesh of a kid is considered a great delicacy, superior to that of the lamb; but this, I suspect, is very much owing to the difficulty there is in obtaining it!

Amongst the rugged mountains of Switzerland large flocks of goats are kept; and cheese-making is carried on there in as large a way as it is in England among the valleys and quiet nooks of the dairy farmer. The colour of the cheese made from the goat's milk is not good, but it is high flavoured, and very similar, when well made, to "Parmesan." Of course in England a "flock of goats" would be useless, for no sale could be found for the cheese; but I do think, if two or three were kept by those who live in wild districts, it would materially increase their comfort; and the children would be reared in greater health, and with less anxiety, if a basin of goat's milk was provided for them at breakfast and supper time. The only mischief I believe a goat is accused of doing, is "barking young trees;" but these are not often found on hills or commons. The planting days are nearly over, the axe being, I regret to say, much more in request at the present time than the spade; therefore, the slight amount of injury they are capable of committing is more than compensated by the gain and pleasure that is derived from them.

My second interloper is more, properly speaking, the inhabitant of the garden than the farm-yard; for where *rabbits* are kept you usually see their hutch in a retired corner of the garden. However, I dare say some of my young friends will not think a few words on "rabbit keeping" very much out of place. They are great favourites with children; and it is very material (in whatever rank of life it may have pleased God to place us) to encourage children in their love of animals, which is so natural to all of them. Having something depending on them for its "daily bread" inculcates habits of attention, kindness, forethought, and regularity; all very material points of character if you wish your child to be a "comfort to himself and those around him." Having said thus much on the policy of having some living creature for the child to look after, I must tell you that, if properly managed, rabbit keeping becomes a most profitable concern. They require, it is true, some little care and attention, but in how many cottages are the children lounging about, only in the mother's way. If, instead of this, they were collecting roots for the rabbits, and attending regularly to them, no time would be lost, and the results would be a rabbit for dinner once or twice a week!

Rabbits require to be kept very clean, or they become a nuisance to everybody about; and, indeed, they cannot thrive unless they are kept clean and dry. An old box can be converted, with a very little ingenuity, into a convenient hutch. Each hutch should have two compartments, one darker than the other; as the rabbit always prefers having a quiet dark retreat, into which it can retire when frightened. The number I should advise a cottager to begin with would be three does and one buck. They begin breeding at five or six months old, and produce from four to ten young ones at a birth. Instances are on record of one pair of rabbits having sixty young ones in a year. Of course this hardly ever occurs, and I am half inclined to doubt the possibility; however, it is true that they increase in a very rapid manner, and in that way well repay the trouble expended on them. I find I have not space to say a word about the management of these useful little creatures, but must delay that till the next month; in the meantime, I hope what I have said will have the effect of establishing a goat and a pair of rabbits in many a cottage home.

C. M. A.

TO CORRESPONDENTS.

*** We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense; and we also request our coadjutors *under no circumstances* to reply to such private communications.

SOOT WATER (*W. C.*).—This is as good a liquid manure as you can apply to your camellias, whether *white* or red. In the first place, soot water is not black; and if it were, the colour of a manure has no influence upon that of the flowers to which it is applied. A coloured manure may be traced into the sap vessels of the stem; but it is digested and changed during its passage through the leaves, &c., before it reaches the petals. If your *azaleas* have flower-buds, they will bloom this season. We do not know *Thornton's Practical Botany*.

SLUG MIXTURE (*Sabrina*).—Your mixture of 1 lb. *quicklime*, and 1 lb. of flowers of *sulphur*, stirred well, and boiled in six pints of water, will form a sulphuret of lime—a most nauseous compound, which will destroy both slugs and caterpillars. If used cold, and washed off soon, we do not think it will injure your plants. The best *trellis* you can have against your house will be galvanised iron netting. See Fox's advertisement.

HYACINTH OFFSETS (*Alfred Paddle*).—As the offsets "have left the parent bulbs" in your water glasses, you may cut them off, and plant them in pots as you propose; but they are scarcely worth the trouble.

ANTS ON PEACHES (*Faversham*).—We are quite sure that the ants did *not* "eat the points and young leaves" of your young peach-tree last year. The destruction was occasioned by some other insect, or some exudation of sap, to feed on which the ants visited it. If they came after insects, they did you good; if to feed on the exuded sap, they did you no harm.

GROUND OVER-DUNGED (*Sigma*).—You can only practically ascertain this by observing whether such crops as peas, and beans, and strawberries, &c.—crops cultivated for their fruit—are over-luxuriant; that is, productive of more stems and leaves than available produce.

GERANIUMS (*Ibid*).—These taken up last autumn, and kept out of the soil (covered with hay) in a room, had better be potted at once; for they ought not to be turned out into the borders until May. The *dust* arising from the coal-ashes in which you plunged your potted plants, though it has covered their leaves, will do them no harm. Exposure to a shower of rain, or to a watering from a fine-rosed watering-pot, will put them all right.

FRUIT-TREE STATIONS (*Capt. Forrest*).—These, which are to be against a wooden fence, had better extend on both sides of the fence; because, as you observe, "the fence not having a foundation like a wall, the roots will be as apt to go one way as the other." Your carpenter will be a better adviser than we can be as to the covering for your manure tank.

STOVE FOR GREENHOUSE (*J. B. H.*).—As you do not intend to have either chimney or flue, it does not signify which you employ; they are all injurious alike by the large amount of carbonic acid and other deleterious gases which they emit.

CARNATIONS, &c. (*Dianthus*).—The party you mention we know to be trustworthy, but we cannot recommend him or any one else. You may obtain Double Russian and other violets from any of the florists who advertise in our columns. There is a double white violet, but we have not seen it. You must water your *carnation cuttings*, so as to keep the soil gently and uniformly moist; it would only mislead you to say water them so many times a week.

PRICES OF POULTRY (*Tooting*).—Mr. Nolan, Bachelor's-walk, Dublin, we are informed charges as follows:—The *Spanish fowl* of first quality, from 15s. to 20s. each; *Dorking*, 25s. each; *Dutch every-day-layers*, 10s. each—cocks and hens the same price; *Cochin China fowl*, 30s. each; *Rouen and Aylesbury Ducks*, 10s. each.

DAHLIA (*W. S.*).—How can you imagine for a moment that we can tell its name from seeing a single petal?

HOTBED FOR CUTTINGS (*J. M.*).—Pray refer to page 146.

SIR GEORGE SHIFFNER'S PIGS (*A Correspondent*).—Can any one inform our correspondent whether "the breed of pigs for which the late Sir G. Shiffner was so famous are peculiar to Sussex?" and he will be obliged by "a description of them, and by information as to where the pure breed may be purchased."

SUPER-PHOSPHATE OF LIME (*T. W.*).—This is made by mixing together bone dust and oil of vitriol; and full particulars are given at page 28 of our first volume. The reason the water will not circulate in your pipe is, that the *return* to the box from whence the hot water is wished to flow, is partly *up hill!*

PAYNE'S IMPROVED COTTAGE HIVE (*Rev. W. P. Bartlett*).—No bars of wood are to be inserted in this, nor should they in any other hive, for the combs to be supported by. At page 305 of vol. i., you will find the size of the small hives. If the small hive is put on in April, and renewed if filled, the bees will not swarm. We do not know Knight's hive, but we do know that the less complicated a hive is the cheaper it is, and the more easily managed. (*H. A. E.*).—You may buy them at Messrs. Neighbour, High Holborn, London. The hives are not sold separate, we think.

TRANSFERRING BEES (*Tyro*).—In Mr. Taylor's "Bee-keeper's Manual" you will find very full directions; and it is too long for extraction. We recommend you to let your stock in your "old, dingy, single hive" swarm this summer, and then in the autumn to unite the bees in that old hive to the swarm from it in your new hive. Thanks for your fact about resuscitating bees.

TEN-WEEK STOCK-SEED (*J. Price*).—It is quite a matter of uncertainty whether the seedlings will be double-flowered; and we can only say, that any florist who advertises in our columns will supply you with seed likely to meet your wishes, if you write to him.

THOUSAND-HEADED CABBAGE (*Clericus, Beds.*).—This is quite different from the Brussels sprouts. Fresh pig-manure may be dug in advantageously at the bottom of the trench for *mangold-wurtzel*; but it is very bad using *fresh* dung for *onions*. Have you no spot manured for the previous crop on which you can grow them? The plot where celery was grown, for instance. In *sowing onions*, we tread the ground *after* sowing, but some gardeners do so *before* sowing. The improved breed of *Essex pigs* may be purchased from W. Fisher Hobbs, Esq., Boxted Hall, near Colchester. Is it certain that *mice* took your *peas* out of the ground, though *thickly* covered with soot? Surely it must have been after heavy rains had washed the soot away.

Night-soil (*Oxoniensis*).—This applied, without any mixture, to the roots of your newly-planted fruit and rose-trees is far too stimulating for them. It is all the worse that your soil is light and gravelly, for the roots will be quite stimulated enough by the drought in summer. Take away the night-soil, and cover the roots with mulch, as directed by us to-day editorially. We are glad that you are intending to label each tree and plant botanically, as well as with the common names. We cannot suggest any improvement.

Greenhouse Facing the North (*R. Reboul*).—We would advise you to change its position. Few plants would flourish in a house with a north aspect, though we think such plants as camellias, and ferns, and mosses, would do admirably. If you had pits, or another house for *growing*, plants would stand longer in bloom when brought to your present one.

Cineraria-seed (*Ibid*).—This may be sown now if you want the plants early, but if not kept in a shady place during summer they are apt to get rusty and insect-attacked. If sown in May the plants will be strong enough to flower about Christmas. In August you must grow from suckers, not seed. We know of no reason why asphalte should not answer admirably for the *bottom of a cold pit*.

Tropœolum Canariense (*Ibid*).—This will flourish alike in the open soil or in a pot, but it will do better if raised in a pot in the first place, so as to attain some size before you plant it out in May.

Bees (*M. P.*).—You may hive your bees into a box of the kind you describe, but why not put them into a "Taylor's Amateur's Hive?" the best wood hive, in our opinion, ever invented. Room and ventilation being given in a proper manner, and properly attended to, *swarming may be prevented altogether*, no matter what kind of hives the bees are in. The holes into your upper boxes may be ¾ of an inch wide, by 4 inches long. Two windows, one at the back and one at the side, in the bottom box, are much better than one only. The top of the hive is, unquestionably, the best place to supply food; for the kind of food most proper, see page 240, vol. i. of The Cottage Gardener. Sugar alone is useless; bees can only take it in a liquid state. For *full* directions for joining swarms, see page 104, vol. ii.

Bees (*R. S. F.*).—Our correspondent's hives face the south-east, but are partly shaded. One hive he weighed last year, and found it increased as follows:—June 29th, they then weighed 23lb.; July 7th, 26lb.; 14th, 34lb.; 28th, 33 lb.; August 24th, 37. In the beginning of August he put a small wooden box upon the hive, but the bees never took to it. At the beginning of February, when the weather was mild, they came out of the hive in the middle of the day by hundreds, and the next day there was also many of them lying dead round about the hive, and there was also scattered all over the hive, hive-board, &c., small drops of liquid substance not unlike honey. Your bees would be much better if they were placed where the sun shines upon them fully all the day. Your situation otherwise is not at all objectionable. August was much too late to put on a box—it should have been done on the 22nd of June, three weeks after their being hived. They have none too much honey. In the last week of April, put the box again upon the top of your hive (supposing it has not been left on); and if you can fix a few pieces of white comb to the top of it, so much the better; and follow strictly the directions given in page 41, vol. ii. of The Cottage Gardener, and in following numbers; and from so fine a stock as yours appears to be, you may expect a large supply of honey, if properly managed. Our advice is, by *no means* to put a side-hive. The drops about the hive-board were the fœces of the bees. The dead bodies lying about are those that died in the hive during the winter, and are now brought out. You should have saved your bees that trouble, by cleaning the floor-board as directed repeatedly in The Cottage Gardener. In all probability the pieces of wood with which you narrowed the entrance were the cause of the numerous deaths. The entrance, in all probability, became choked up with dead bees, and the living population were half suffocated for want of pure air. Stopping up with perforated zinc would have been still worse. Remove your bees whenever you will, considerable loss will be sustained; but if you do it at all, do it immediately. Buy "Payne's Bee-keeper's Guide," and you will be at no loss how to manage your bees in future.

Plum Pruning (*E. Marsden*).—If your plums are young, and their desired form not complete, you may shorten the young shoots three or four feet long nearly half: but why not have pinched the points off in July? Pray read our back papers on the management of gross young wood in the summer season. Four shoots will not form a tree; your pruning now ought to cause abundance to select from.

Fruit-trees for S. E. Wall (*Rhododendron*).—Surely you may plant peaches in Shropshire on such a soil (sandy-loam), and on the south portion? Mr. Errington grows first-rate peaches and nectarines every year farther north than you. Of *Apricots*, the Moorpark first; the Shipley, a safe bearer, and Royal. Of *Plums*, Coe's Golden Drop, Greengage, Precoce de Tours, Reine Claude Violette, Imperatrice, Ickworth Imperatrice, Jefferson's early Orleans, Quetsche St. Martins. Of *Pears*, Jargonelle, Dunmore, Fondante d' Automme, Beurree Diel, Winter Nielis, Passe Colmar, Urbaniste, Doyenne d' Hiver Nouveau, Josephine de Malines, Hacon's Incomparable. Of *Cherries*, the early Duke, Elton, Florence, Royal Duke, and Bigarreau. Let us advise you to procure the pears on quince stocks. If so, however, you *must* alter the staple of the soil where they are planted, according to directions concerning the quince in our back numbers.

Farming Five Acres for Cows (*B. W.*).—You will see remarks bearing on your objects in our Allotment article for March. We would beg to direct your attention to the Lucerne as to a "soiling" system. "Cuttings" of this will help you much during the summer; and you will, of course, have an acre or two of hay to carry you through the winter. Added to this, plenty of mangold, some Swedes, and the Thousand-headed cabbage, of which you should have nearly a quarter of an acre for early feed. Perhaps a little rye cutting may chime in with your arable course. You cannot have all; therefore, you will have to select and form a system for yourself—the system based in the main on the character of the soil. For mangold and Swede culture, watch an Allotment number for April.

Softening Water (*J. B.*).—Either carbonate of potash or carbonate of soda will soften water, if its hardness arises from holding sulphate of lime (gypsum) in solution; but carbonate of ammonia is much to be preferred for the purpose, if the water has to be used for watering plants. An ounce of either, to a hogshead of water, is enough to decompose all the gypsum it can contain.

Kohl Rabi (*J. Andrews*).—A pound of seed will give birth to plants enough for several acres. Sow in the last week of this month, very thinly in drills, about 18 inches apart, and let your seed-beds be proportioned to the extent of your field. The plants will be ready for planting out in May and June, in rows two feet apart, and the same distance from plant to plant. The soil should be manured and thoroughly pulverised, the same as for a crop of Swedish turnips, but they require a rather stronger soil.

Magnifying (*A Young Botanist*).—You had better obtain a *single* microscope, or lens, mounted on a pillar, which leaves both your hands at liberty.

Flowers for Bees (*N. S. H.*).—It would be too difficult a task to give a list of the plants from which bees collect honey; it would fill a number of "The Cottage Gardener;" but it would be more difficult still to say what they do *not* collect from. We have found the advantage of planting in the vicinity of hives a large quantity of the common kinds of *crocus*, single blue *hepatica*, *black hellebore*, and common *butter-bur*; all of which flower early, and are rich in honey and farina. Wood sage (*Salvia nemorosa* of Dr. Smith), which flowers very early in June and lasts all the summer, is in an extraordinary manner sought after by the bees; and when room is not an object, twenty or thirty square yards of it may be grown with advantage: Dwarf marjoram (*Origanum humile*) and Origanum rubescens (of Haworth) and *mignonette* may also be grown. Cultivation beyond this, exclusively for bees, we believe answers but very little purpose. With regard to mignonette and furze imparting an unpleasant flavour to honey, is what we have never before heard of, and on asking the opinion of a clergyman in Essex, whose bees are within reach of several acres of mignonette, grown for seed to supply the London market, he says that his honey is always remarkably fine flavoured, which he attributes chiefly to the mignonette. And another clergyman living in a quite different direction, and who is surrounded by *furze*, tells us his honey is always remarkably good. And Dr. Bevan says, in page 63 of "The Honey-bee," "mignonette, if sown abundantly, is a plant of considerable importance to the apiary, from its continuing in bloom till the autumn frosts set in, and yielding honey of *peculiar whiteness and delicacy*. Instances are recorded of an abundant crop affording a large supply of honey to an apiary near which it was sown, when at the same time there was a general failure of all the neighbouring stocks."

Sowing Depths (*Columella*).—From one-and-a-half to two inches is the best depth we think at all seasons for *beans* and *peas*. The depth for *potatoes* at the present season may be, in dibble holes, six inches deep, so that the top of each set is about four inches below the surface. They will not require earthing-up. A *seed-bed* for annuals, &c., need not be deep, and if for flowers will not require any manure.

Instrument for Measuring Distances (*Tooting*).—Our correspondent recommends a *Perambulator* to a former inquirer.

Retarding Hyacinths (*A Young Beginner*).—It is doubtful if you will be able to keep back your hyacinths for the *May* exhibition. Your only chance is to turn out your pots from the greenhouse immediately, and plunge them an inch deeper than the rims in the coldest place you can. A north-east aspect, behind a house or wall, where the sun could not reach them, is the best situation. We have kept them in a cold frame with that aspect until those in the flower-garden were over. Your plant is the Gouty Houseleek (*Sempervivum tortuosum*).

Lawn of Public Charity (*Med. Bac.*).—It is too late now to sow fine grass seeds on a rough lawn like yours; the end of September is the best time to sow grass seeds *among grass*. Try sowing over it a few pounds of white clover seeds; rake the grass roughly, and then roll it. The worst part of the coarse grass ought to be spudded out, from time to time, during *wet weather*.

Water Plants for Small Stove (*C. J. V.*).—Unless you take to any of the water lilies (*nymphæa*), the next we would choose is *Nelumbium speciosum*; but where to purchase it, or any other plant, we dare not break the rule in such cases. There is such a plant as *Platycodon grandiflorum*, but then it is not a bulbous-rooted plant.

Flower Sowing (*R. O.*).—None of the flowers you name require to be sown even in a cold frame. We have said already that *Tagetes tenuifolia* might be sown in the open border in April, but you may get it on a little earlier by a slight hotbed; and if you so heat it, the first or second week in April will be time enough to begin. *German asters* may also be raised, like the tagetes, either way, and at the same time. *Stocks* also sow for a first crop now, and again at the end of April. *Nolana atriplicifolia* sow in the flower-bed early in April; it will contrast with *Œnothera macrocarpa*, not *grandiflora*, better than any other blue flower of the same habit, and the œnothera will bloom longer than it.

Names of Plants (*A Young Gardener*).—No. 1 is a species of *Cupressus*, and we think *C. thyoides*, or white cedar. No. 2 is a species of *Juniperus*, and we think *J. virginiana*, commonly called the Red Virginian cedar or cypress; but we cannot undertake to say for certain as to the species from the little bits sent.

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of Christ Church, City of London.—March 7th, 1850.

WEEKLY CALENDAR.

M D	W D	MARCH 14—20, 1850.	Weather near London in 1849.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
14	TH	Peacock screams.	T. 50°—40°. S.W. Fine.	19 a. 6	VI	6 a.38	1	9 26	73
15	F	Red Ant appears.	T. 53°—45°. N.W. Fine.	17	2	7 49	2	9 9	74
16	S	Frog spawns. [note heard.	T. 57°—28°. N.E. Fine.	14	4	9 2	3	8 52	75
17	SUN	5 S. IN LENT. St. Patrick. Wagtail's spring	T. 59°—30°. N. Fine.	12	5	10 13	4	8 34	76
18	M	PRS. LOUISA B. 1848. Edw. K. W. Saxons.	T. 49°—38°. W. Rain.	10	7	11 26	5	8 17	77
19	T	Black currant leaves.	T. 51°—26°. E. Fine.	8	9	morn.	6	7 59	78
20	W	Sun's declin. 0° 11′ s. Humble Bee appears.	T. 46°—27°. E. Fine.	5	10	0 57	7	7 41	79

ST. PATRICK.—Upon the occurrence of this anniversary last year we gave a biography of this guardian of Ireland, such as we considered the best sustained by the concurrent evidence of the early historians. The summary of that biography is, shortly, that he was very instrumental in converting the pagan Hibernians to Christianity, and that he died on the 17th of March, A.D. 464. We then, also, expressed our belief that the shamrock, the three united leaflets of which he employed as an illustration of the Trinity, is not the trefoil or clover, but the Wood sorrel. The leaflets of this are more beautiful, and are similarly united in threes. Subsequent consideration has strengthened us in our opinion. The trefoil is not eatable by man; but the shamrock was a common food of the Irish between May-day and harvest, the very time that the Wood sorrel leaves are in perfection as a salad herb. "Butter, new cheese, and curds, and *shamrocks*, are the food of the meaner sort all this season," says Vallancey, in his *Collectanea de Rebus Hibernicis;* and Wythers, writing in 1618, alludes to it thus:—

"And, for my cloathing, in a mantle goe,
And feed on *Sham-roots*, as the Irish doe."

Besides this, the Druids, long before the introduction of Christianity, held the shamrock as a sacred and medicinal plant. Now, the Wood sorrel is a native of the groves in which the Druids dwelt, and is gifted with medicinal properties, of which trefoil has none.

EDWARD, KING OF THE WEST SAXONS, was stabbed on this day, A.D. 978, by order of his step-mother, Elfrida, whilst he was drinking at the gate of Corfe Castle, in Dorsetshire. The murder was perpetrated to render the throne vacant for her own son, Ethelred, but remorse was the fruit returned to the murderess; and if the following was the warning of Dunstan to Ethelred, most literally was it fulfilled:—"Because thou hast aspired to the kingdom by the death of thy brother, whom thy mother slew, hear, therefore, the word of the Lord: The sword shall not depart from thy house, but shall rage against thee all the days of thy life, and shall slay thy seed, until thy kingdom be given to another people!" (*Roger Wendover's Chronicle.*)

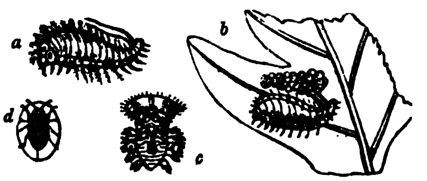
METEOROLOGY OF THE WEEK.—During the last twenty-three years, the average highest and lowest temperature of these seven days has been 51.2° and 35.3°, respectively. The greatest warmth during these days, in the said years, was 60° on the 19th, in 1846; and the greatest cold, 20°, on the 20th, in the same year. Of the 161 days 105 were fine, and on 56 rain fell.

NATURAL PHENOMENA INDICATIVE OF WEATHER.—When the *marigold* has its flowers fully opened early in the morning, it indicates that the day will be fine; and, as certainly, if the flowers of the *Small Field marigold* (Calendula arvensis) are closed in the morning, the day will be rainy. *Mare's tails*—the popular name of those curled and twisted light clouds known to meteorologists as *Cirrus*—indicate the approach of wind, and sometimes of rain.

RANGE OF BAROMETER—RAIN IN INCHES.

March		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
14	B.	30.351	30.284	29.605	29.892	29.631	30.156	30.346	29.874	30.308
		30.192	30.223	29.426	29.592	29.644	30.001	30.290	29.758	30.268
	R.	—	0.02	—	0.48	—	—	—	—	—
15	B.	30.152	30.332	29.924	30.457	29.745	29.988	30.206	29.770	30.312
		30.005	30.324	29.715	30.447	29.705	29.882	30.006	29.389	30.292
	R.	—	—	0.06	0.04	—	0.03	—	0 06	—
16	B.	29.921	30.316	29.986	29.667	29.572	29.570	29.904	29.685	30.337
		29.729	30.138	29.940	29.400	29.500	29.267	29.795	29.742	30.309
	R.	—	—	—	—	—	0.12	—	0.26	—
17	B.	29.603	30 131	29.891	29.972	29.770	22.447	29.832	29.401	30.305
		29.577	29.761	29.836	29.879	29.746	29.388	29.794	29.330	30.201
	R.	0.01	0.05	—	—	0.03	—	—	0.15	—
18	B.	29.525	29.739	29.861	30.030	29.726	29.576	30.825	29.404	30.159
		29.404	29.609	29.844	29.985	29.674	29.513	29.729	29.245	30.057
	R.	—	—	—	—	—	—	—	—	0.01
19	B.	29.713	29.562	29.867	30.039	29.858	29.573	29.729	29.174	30.062
		29.598	29.280	29.771	29.897	29.691	29.563	29.489	29.035	30.025
	R.	0.01	—	—	—	—	—	—	0.15	—
20	B.	29.647	29.638	29.667	29.811	30.274	29.781	29.542	29.005	30.242
		29.565	29.400	29.473	29.450	30.081	29.545	29.493	28.910	30.108
	R.	0.13	0.10	0.04	0.04	—	0.10	—	0.36	—

INSECTS.—The common artichoke's leaves suffer sometimes, though rarely, during the summer, from the attacks of the larva of a very curious small beetle, which may be called the Artichoke Tortoise beetle, *Cassida Viridis*. The beetle, which is found in May and June, is not more than one-sixteenth of an inch long; the antennæ are black, the dotted wing-cases and other outer coverings green, but the body beneath them black, and the legs pale, with black thighs. It is found upon the Water mints, as well as upon thistles and artichokes. The larva has a very flat body, with spines upon its edges; and it has the singular habit of covering itself with its own excrement, which it unites together in a mass, and carries on a kind of fork attached to its tail. The pupa is also very flat, having thin toothed appendages at the sides of the body, with a broad thorax prolonged forward into a rounded expansion, which covers its head.



a, larva; *b*, the same on a leaf, with its canopy of excrement; *c*, pupa; *d*, the perfect insect.

ANY question connected with potato culture is much too important—is too intimately connected with the comfort and subsistence of our countrymen—for us to pass it by, or to neglect any ray of light that may be thrown upon it. Now, one of the most important questions, both as involving expense of culture and weight of produce, is—"Ought the stems of the potato to be earthed up?"

We thought, and we still think, that our own experiments were so carefully conducted for the testing this question, and those experiments so uniformly gave results unfavourable to the practice, that we have never directed our attention to the subject since, but have continued to grow potatoes without earthing them up, and have been perfectly satisfied with the produce; for we have had better and forwarder crops than our neighbours, who continued to earth up in accordance with the old practice.

We have the less doubt that we are correct, because we have seen other writers recommending that potatoes be not earthed up; and among those writers is one who would not agree with us if by possibility he could avoid it. Moreover, we know, by the general consent of gardeners, that potatoes in frames are not earthed up; because such earthing up would retard the production of tubers about a fortnight; and any practice which retards such production by so much, renders them liable to the disease when cultivated in the open ground, for the earliest ripened are always most free from infection.

Again, we considered what are the objects to be attained by earthing up; and we could discern none but such as are opposed to the early and perfect ripening of tubers—namely, causing the progress of the tubers to be delayed whilst the plant is issuing fresh roots into the earth drawn up about its stem, and retaining more moisture about the tubers.

We were satisfied, therefore, that not earthing up potatoes is a sound practice; and, until we received the following letter, we did not know that any doubt could be raised upon the subject. The letter is from a clergyman, like ourselves a searcher after truth, and we, therefore, readily print it thus prominently:

"Your correspondent, M. E. A. (near Hastings), wishes to know if any of your readers can give him the result, from his own experience, of 'not earthing up potatoes?' Allow me to reply that I have grown for years, and I may say successfully, the potato under various treatments; and having several times attempted the system of 'not earthing up,' which I remember to have been advocated in one of your valuable numbers of The Cottage Gardener last year, I determined to try it again; but I found it a failure; and whilst at taking up time I had an abundant crop of American earlies in beds earthed up in the usual way, those not earthed, both Americans and Regents, produced a very inferior crop—half of them green, much smaller, and more diseased. Your correspondent will probably say, 'this was your fault in not planting them deep enough;' to which I reply, as a general axiom to be observed in growing the potato, never plant deep, excepting on the approach of winter. By deep, I mean anything exceeding three inches. I never plant a potato till it has sprouted, and its sprout is an inch in length. I then let the potato go so deep, with the dibble, into the ground as to allow the sprout to rest within three inches of the surface. And for this most profitable system I am indebted to that valuable little pamphlet 'On the Management and Growth of the Potato,' published by Mr. James Cuthill, Camberwell, Surrey, in praise of which I cannot sufficiently speak. I have just planted with my own hand some American earlies, and Rylott's flour-ball, which I obtained of Mr. Turner, of Sheffield; all of which I have kept through the winter in single layers, on a cold plaster flooring of an out-building, free from all outward air; and stronger or more healthy sets I never saw. Indeed, my neighbours were astonished, the sprouts of many being two inches long, whilst the tuber itself is so robust and cold to the touch, that, without presuming too much, I would almost venture to leave it exposed to any moderate frost. I have found lime, dug in before planting, a great preventive of disease; but, more than all, I never cut a tuber. All mine are planted whole, from the Ash-leaved to the Regent; and here again may I be excused in referring your correspondent, M. E. A., and your readers generally, who take an interest in the culture of this root, to the observations of Mr. Cuthill, in his pamphlet, on this very point, where he justly condemns the mincing and slicing practice, which is too often adopted under cover of a false economy. The *seeming* extravagance to many of planting whole sets, I have invariably found, under proper treatment and due regard to space, to be in the end the cheapest as well as most profitable mode. I have found, too, that insertion by the dibble, rounded at the end, is by far the best mode, provided the potato is planted as the ground is dug, so that it is not pressed by being trodden on.—A. A., Clericus."

Here, then, are two totally conflicting results of experiments; and we can only suggest, that one cause of our correspondent's failure, so far as the goodness of the unearthed tubers is concerned, is patent in the fact, that they grew partially out of the ground. This, of course, made them green and small. Now, though we do not earth up our potatoes, yet we take care that the tubers nearest the surface have an inch in depth of earth over them.

Our potatoes, on which we experimented, were planted at Winchester in November, by the dibble, six inches deep, in a light fertile soil, without manure, and were frequently hoed. The varieties were Ash-leaved Kidneys and Julys; and were all ripe and stored early in August. The result of our comparative experiments was, that the unearthed crop was one-fourth heavier, and the tubers finer, than in the crop earthed up.

We state these particulars, because we shall be obliged by our readers trying experiments, and favouring us with *full particulars* of the place where, soil, time of earthing up, planting, treatment, and the results. We shall try some more experiments ourselves this year, and whatever may be the issue we will place every detail before our readers. The question is now raised—Whether to some varieties, and on some soils, the practice of earthing up the potato plants is beneficial?

THE FRUIT GARDEN.

The Forcing Matters of the Amateur.—Having now completely despatched for this spring all that concerns planting and pruning, the latter as applied to trees in a rest state, we must now occasionally take a glance at the amateur's fruit-forcing, returning at intervals to the cottager.

Now, it is much more difficult to offer advice to the amateur on the subject of fruit-forcing than to those persons who possess a house or pit for everything they desire to cultivate; for in the amateur's house we may find, at times, such a mixture of objects as at first sight would seem to bid utter defiance to all classification as to their culture. And, indeed, it is no very easy matter to do so, and the attempt must at times necessarily lay us open to misconception. Nevertheless, we trust to offer some remarks which may prove serviceable; addressing ourselves chiefly to those who have almost everything to learn.

VINES IN-DOORS.—We need say little more at present, having so recently dealt with the subject; we must, however, remember that many hundreds of amateurs in a small way, having but one greenhouse, are compelled to grow their fancy plants beneath the shade of vines. With the pot-plants we have nothing to do: our good helpmates, Messrs. Appleby and Fish, will see to that. We have, however, a duty of a peculiar character to perform, in regard of advice as to vines in a general plant-house; and the advice offered may, of necessity, at times appear somewhat divergent from the principles heretofore laid down as to vine culture, for here again sheer expediency must step in to warp and bias principles.

It becomes the plant cultivator, at this period, to relieve his grapery of all stock for which he can find a safe shelter, especially such as is not wanted for immediate effect, in order that his *truly good things*, and his precocious gems of the early spring, may have room to unfold their beauties, and that the vines overhead may receive a proper amount of attention. Some persons commence what they term forcing their vines in the greenhouse in February; others are content to wait until their buds shew signs of expanding, and then apply artificial warmth. Indeed, it not unfrequently happens—where stove plants, or, it may be, orchids, are grown together with geraniums and other ordinary greenhouse plants—that so much artificial warmth has been sustained during a tedious winter, that the vines are excited betimes whether or not, and that the cultivator begins at this time of the year to feel rather anxious about them. We may here observe, that vines once started and beginning to expand the leaf must not be permitted to sustain what is termed a check; our readers, nevertheless, must beware how they understand the term " check." There are those who would, we fear, rush into what has been aptly termed a " coddling system," and this would be certainly prejudicial to the plants, and everything but favourable to the vines. Now to explain further: to vines in the state above described, the too free an admission of cold currents of air on a windy day would be a check; a sudden lowering of the temperature (whether day or night) beyond 50° would be a check; and we may fairly add, that in the event of snow falling, the suffering a coating of this to melt over and saturate the roots would be a check. Under these circumstances, therefore, a steady and medium course should be pursued, a compromise between the plants on the one hand and the vines on the other. From the early part of March until the middle of April, a day temperature ranging from 55° to 65°, and a night heat of from 55° to 60°, may be indulged in without injury on either side. One thing may be observed, that where it is necessary to hasten the vines as much as possible, a considerable advance in the thermometer may be permitted on sunny or bright days; and from half-past three o'clock in the afternoon until seven, the thermometer may range as high as 75°, if really necessary. Of course disbudding and stopping must proceed at the proper periods, according to directions before given; and as it is not convienent to be disturbing the pots too much, such must be performed less frequently, but with a more liberal hand than is practised where vines alone occupy the house. If any very heavy and rich top-dressings were applied to the borders in the end of autumn, as is or should be the practice, we advise that such be entirely removed immediately, and the surface of the border made into a smooth incline, as steep as possible, in order to carry off a portion of the heavy rains which may be expected at this period. We should even count it good practice to tread the surface firm, provided the soil was *very dry* on the surface; this will facilitate the descent of the rains. By the end of May, the volume of soil in a well drained and shallow border will have attained, at least, the average heat of the atmosphere; and in many cases it will then be expedient to apply a rich top dressing again, of which more anon.

PEACHES IN-DOORS.—Our last advice of any importance was given at page 207. We there said so much about the general principles of peach-forcing, that it will not be necessary here to go into lengthened details. One or two points, however, we must refer to; the first—

DISBUDDING.—To no fruit is this of more importance than the peach. A healthy tree suffered to retain all the shoots produced would speedily become an entangled mass, destructive of the character of the tree, and defeating the ends of training. It seems strange at first sight that such trees as the peach and the vine, which fight their way in a state of nature, unassisted by the hand of man, should require so much trimming and dressing under artificial culture. But the strangeness of the matter will vanish, when we take into full consideration the great difference of the circumstances under which the trees are placed. In the first place, our amount of light is by no means so great in the aggregate as it is in tropical climates; for it is not improbable that the peach in Persia, or the vine in Syria, performes a greater amount of the elaborative process in one week than in three weeks in Britain. Again; there the tree enjoys freely those fluctuations of the atmosphere which lead to a solidification of the tissues of the plant; tending to development of parts rather than mere extension; for in Britain, what is termed forcing has, of necessity, a tendency to " draw," or elongate the parts. And thus it is that he who—carrying these principles continually in his mind—treats his trees in as natural a manner as possible, avoiding a " coddling system " on the one hand, and extreme declensions of temperature on the other, is certain, other matters being right, to excel in the culture of tropical fruits. Besides, we must not forget the difference in the destiny of the trees thus situated; nature merely aims at the perpetuation of the species; man, at obtaining the greatest quantity of the largest and finest fruit: man has most to do with the enlargement of the pulp; nature, with the perfection of the seed, and the thorough maturation of the wood; the last, indeed, almost a necessary consequence of the former. We do not deem any apology necessary for this apparent digression; for we would fain have THE COTTAGE GARDENER something more than a mere " cut and dry " calendar; leading the minds of the readers, who honour its pages with an attentive perusal, to dive into the very essence of things; then, and then only, can knowledge take a firm footing, and become a luxury instead of a toil.

And now a little advice about disbudding. Much depends on the degree of luxuriance in the subject to be operated on; a weak tree will produce little more foliage than is requisite; a strong, or gross one, much more. We say foliage, for, after all, let it be well understood by beginners, that a certain amount of healthy foliage presented to the light is the condition requisite to a proper elaboration of the juices; on which point both the present success and the future stability of the tree must ever depend. Now, we would not have our readers suppose that this disbudding is to perform everything; no, it is merely a contingent circumstance forced upon us. There are other matters of culture which are of greater importance still. And here we would direct the attention of those who like to study principles, to a paper on rose-pruning, at page 209, by our excellent friend, Mr. Beaton, which is, indeed, a good deal more than mere pruning, and altogether a most admirable exposition of the general economy of vegetation, whether in root or branch.

Disbudding should in all cases commence by rubbing off all foreright shoots, or those which project beyond the trellis—that is to say, provided that portion of the tree is not altogether destitute of young wood, in which case even foreright shoots must be reserved, and bent in due time towards those portions of the tree which require them for filling up the blank. After awhile, a regular thinning out of even well-situated spray must take place; but this must not be done all in a day; we would have the proceeding, in all cases, extend over two or three weeks, for we have ever found a kind of stagnation of growth to succeed a heavy disbudding. The top of the tree will in general require attention first; and a few may be removed almost daily from thriving trees, until the process is complete. A shoot or two adjoining the leader may be entirely removed; and, indeed, ultimately there need be little more side spray suffered to remain on a given branch of last year than a leader, and one shoot on each side—right and left. This, however, depends much on the intervening spaces requiring to be filled; sometimes two or three will be requisite on one side, and none on the other. Care must be taken in all cases to reserve the shoot that grows at the lowest end of any stem; by such means the trees are kept from becoming naked. And, again, if the amateur is slightly doubtful in the first disbuddings as to the propriety of retaining any given shoot, he can just nip off the point with finger and thumb, and at future disbudding it will become plain whether it ought to be reserved. R. ERRINGTON.

THE FLOWER-GARDEN.

PROPAGATION.—Before I resume the subject of propagating, or increasing plants from cuttings, I shall briefly enumerate some of the most showy hardy annuals that ought to be sown before the end of the month—that is, if they are to succeed those sown in the autumn, and so carry on the bloom from the beginning of June to the middle or end of July: but I never sow the general stock of these for the gardens here until the 20th of April, and from that to the end of the month, and again a second crop about the middle of May to succeed them. The reason for this late sowing is this: my worthy employers pass the gay season in London, and only come down here about the beginning of July, so that for May and June I want none of these things to be in bloom. This is a great advantage in many respects, and yet I often grudge it, as, with a timely preparation, I could have every bed in the garden in full bloom from early in May till after Midsummer, by nothing else but annuals, which are now-a-days discarded, because the great holders of our best flower-gardens are absent at that time; and those who pin their fashion to the sleeves of the great landowners cannot think annuals are respectable enough, because they are not generally grown by the more wealthy. Mr. Appleby has given a very good list of hardy annuals about this time last year; and as he added their English names, I need only here give those names by which they are generally sold in the seed shops.

I shall begin with the LUPINES. The best annual amongst them for a whole bed, is ***Lupinus Hartwegii***; it makes an excellent blue bed from July till killed by the frost. Sow it before the end of this month on a slight hotbed, or in some warm place. I sow it in shallow boxes; and as soon as they are up I put them in a cold frame, and keep them short of water, to bring them up stocky; about the end of April I plant them singly, a few inches apart, in a very poor sandy bed in the reserve garden.

RESERVE BED.—This kind of bed serves for hundreds of things for the flower-garden; therefore, I may say, that it is made out-of-doors, in a sunny, sheltered situation, on a hard bottom; and for seedlings, the depth of it is only two inches; the compost being more than one-half sand and the rest leaf-mould, not very fine. There is nothing in the world in which young plants will root faster than in this compost; and being very shallow, on a hard bottom, the roots cannot go very deep, and at planting time, you can push a spade or a trowel, or even a flat piece of stick under them, and so get them up easily, with lots of the light compost hanging to the roots; you then carry them in a barrow or basket to the flower-bed, and plant them even in the middle of a hot sunny day; and after watering the bed all over with a rose pot, not a plant in a hundred will flag a leaf. Such beds are protected according to the crop—some have glass, but not many; they are generally hooped over with small long rods, and covered with mats. When pot plants are turned out into these reserve beds, the balls are broken, and the compost is deeper. We also turn out large quantities of store pots in such beds without breaking the balls. All our verbenas, and such low things, are thus heated as soon in April as they are hardened enough to stand out; and at planting time each ball, with its twenty or more plants, is taken out entire, carried to the flower-bed, shaken out, and planted just like the seedlings. I should not like to say how many ten thousand plants we use in a season for the flower-garden, but we never plant a single individual with a ball to it. Now, when I write about "reserve beds," it will be recollected from this account of them what kind of beds I mean. This *Lupinus Hartwegii* is now, let us suppose, planted out in a reserve bed. In the autumn, it will be more than a yard high; and as soon as the flower spikes are about one-third faded from the bottom, they are cut off, and that is the only secret in keeping lupins in bloom a very long time.

Lupinus mutabilis and *L. Cruickshankii* are two much stronger than the last, and if treated in all respects like No. 1 will bloom on till the frost comes. They are not so well adapted for a bed by themselves as for making a centre to a good bed of mixed lupins—say, a large circle with three plants of these tall ones in the centre, and another circle of them round these three, and eighteen inches from them; then two rows of No. 1, or three rows, if the bed is large enough, and the last row of another very useful lupin, called *Nanus*, next the grass or gravel. This nanus, or dwarf lupin, will be time enough if sown by the middle of April; and it should stand a foot from the edge of the bed, as it spreads well. There is another lupin—rather new, and called *Tomentosus*—not quite so strong as *L. Hartwegii*, but it flowers to the end of the season, and might safely be used next to Hartwegii in a circle or row; for we may rest satisfied that any combination of plants that will answer in a circular bed, will do so equally well on a long border alongside of a walk. We have only to use those plants which we would place in the centre of a circle, as the back row on a border. The old-fashioned blue and yellow lupins, called Dutch lupins, are only fit for patches in a mixed border, as they are soon out of bloom. I had not tried them for years till 1847, and the mice took more than the half of the seeds; which reminds me that all lupin seeds are palatable to the mice, and must be guarded from them.

Sweet Peas.—One sowing of them is enough this month. There should be a few sweet peas in every garden, however small, if only for cut flowers: every body likes them that way; but they are not very manageable as a flower-garden plant, unless used as a back row on a border.

Prince's Feathers and Love-lies-bleeding.—Who would think of growing such common things in a fashionable flower-garden? I do, for one! The centre of four large beds are made up of them here every season, and the arrangement is such that every one who sees them approves of them. These four beds are part of an arrangement of beds to suit Italian architecture in their neighbourhood. There is one Italian cypress in the centre of each of these beds; round four of these cypresses is a broad ring of the Prince's feathers, say five or six plants deep; their purplish pannicled spikes pushing upright in imitation of the cypress, and thus heightening the effect; then, just outside this band is planted or sown, for the two will answer to be either sown at once in the bed, or be sown anywhere else, and transplanted when they are five or six inches high. Love-lies-bleeding is about the same height as the Prince's feathers, when they both come into bloom, but the flower-spikes take opposite directions; and, if the soil is very rich under the Love-lies-bleeding, its flower-spikes will hang down 20 inches or more; and if the plants are only six inches apart in the row, they will make a complete hedge, the outside of which is nearly a sheet of pendant purple bloom, forming a very strong contrast to the feathers and cypress. Now, outside this pendant hedge of bloom there should be another band of flowers, that grow no taller than just to cover the points of the Love-lies-bleeding. I have guessed and tried, tried and guessed again, to find out the proper width of this outer band, and the nearest point I got to is, that the band should be as wide as half the height of Love-lies-bleeding, which in very rich soil, in which it delights to grow, is generally a yard high, or a little more. Now, this may seem a small matter to some, but with flower-gardeners there is no question at all about the matter; there must be certain proportions in which different plants will look better, and heighten the effects produced by them, than any other, whether they are planted in one bed, like these under review, or in separate beds of each colour, forming a whole mass. But, as a set-off, I may say, from having had a large share of this kind of gardening, that to plant a flower-garden properly is one of the most difficult points in gardening; indeed, the whole range of gardening put together is not half so difficult to learn, or to carry out.

In England we carry out flower-gardening better than is done anywhere else, but I never yet saw a flower-garden without a fault, and many faults too; my own attempts among the rest. I am quite firm in my opinion, that nothing in the whole range of the sciences is more difficult to learn than this branch of gardening; therefore, until I learn it properly myself, I cannot engage to recommend to any one of our readers how best to contrast, or to harmonize, the colours of their flower-beds; all I can do is to give the colour, the height, and the cultivation of flower-garden plants; just as gentlemen do about ladies' dresses—they buy them, but they seldom dictate the cut of the fashion, that must be left to the ladies themselves; and ladies, in nine cases out of ten, can arrange the colours of the flower-beds better than the gentlemen and their gardeners.

Those annuals that will bloom from June to October, and of which I said enough last autumn, should be sown on a slight hotbed before the end of the month: I mean, more particularly, *Tagetes tenuifolia*, *Saponaria calabrica*, and *Sanvitalia procumbens*, and either of them, when the bed is once filled, will shew what a flower-bed ought to be during a whole season, both as to flowers, and the disposition of the plants

Portulaca.—There are four or five really beautiful kinds of this plant, annuals, and all succulents also; requiring exactly the same treatment as *M. tricolor*, only that two sowings would carry them on all the season (See p. 308). They are nice for beds, patches on a warm border, or for pots. Any time in March, or early in May, will do to sow them; and the best way is to buy a packet of "mixed" seeds, from which you get as many sorts as if you were to order a packet of each; only there is a yellowish one which, perhaps, they have not yet put into the mixtures. Their other names are *P. Thellusonii*, *P. splendens*, *P. grandiflora*, and the yellow one, with two more that are only varieties of the first three. Their English family name is *Purslane*, but this word has no meaning in it, and is not so easy to mind as Portulaca, which, besides being easy to say, is very expressive. When rendered into English it signifies "the milk-man"—from *porto*, the Greek name for a carrier, and from which our word porter is probably derived; and *lac*, milk, milk-carrier, or milk-man. But many other plants as well as these have their juices in the form of milk.

Lobelia Gracilis is a free-growing, blue-flowering annual, and very useful in the flower-garden, as it lasts till the end of the season and will grow in any soil, soon covering the bed; and when it reaches the sides may be cut like a hedge without being stiff-looking. In good soil it will rise about a foot, and will bear topping; that is, the longest points of the shoots may be cut off three or four times during the season, so as to have all parts of the bed of equal height. The seeds of all the *Lobelias* are very small, and ought to be very slightly covered, and the pots to be always watered before the seeds are sown; and the moment they vegetate the seedlings ought to be exposed to the air as they are impatient of close confinement.

Lobelia Erinus.—There are three or four little varieties of this; and all of them spread well on the ground, and are the lowest plants that one can use for little beds and for edgings. One of them is called *grandiflora*, and another *lucida*, but as they sport considerably there is little use in distinguishing them by particular names. I always make choice of the best in a bed to save seeds from, and now I have a much better sort than any of the named ones. There are also two or three white-flowering varieties of it, and all of them are very useful to form a gay assemblage.

Lobelia Ramosa.—This is the most beautiful blue-flowering bedding plant we have got of its size, which is from 12 to 14 inches high. It is of a very slender growth, with large blue flowers, having each a white eye. It does not last till the end of the season, like the two last sorts, but by sowing it towards the latter end of March, and again during the first week in May, it may be had to the end of September.

Campanula Sylvatica, *alias* Stricta, is another blue-flowering annual which lasts in bloom about two months, rising to eighteen inches high, and requiring exactly the same treatment as these Lobelias.

Brachycome Iberidifolia, or the Swan River daisy, is also of this class of blue bedders. If the autumn is dry it makes a fine bed in a light rich soil. It has also sported into light varieties, and looks much like so many Cinerarias. The whole of these will be in time enough if they are sown before the last week in March.

In looking out for novelty in annuals, beware of the new kinds of *Clarkia;* I was taken in with them last summer. They are frightfully ugly; but recollect to have a bed of the mixed white and purple; mix equal quantities of the seeds of each, and sow them broad-cast now, or any time to the end of May. *Coreopsis Drummondi* and *Erysimum Perofskianum* make fine masses of yellow bloom; and if sown now and in the last week in April, and again late in May, they would bloom till the frost comes. And they may be transplanted from time to time in the reserve garden, until a vacant bed is ready for them. The first sowing of *Coreopsis Drummondi* should be on a gentle hotbed; the *Erysimum,* and all the long list of hardy annuals, may now be sown in the open ground at once; and *Phlox Drummondi,* to come in early, should now be sown in. Treat also *Cobea scandens,* to make a coarse summer climber against trees and arbours, &c. A very good way to make a slight hotbed for annuals, is to make a trench a yard deep in a spare sunny border, and fill it with half-spent linings from hotbeds, or any littery dung, to create a slight heat; cover it with a couple of inches of light soil, and hoop it over, to be sheltered with mats.

D. Beaton.

GREENHOUSE AND WINDOW GARDENING.

Vines in a Greenhouse.—In looking over a mass of letters, before consigning them to the waste paper repository, I stumbled upon a statement of our editor's, that "vines, &c., grown in a greenhouse will come under your department." If I had not thus afresh been reminded of my duty, it would have been no great matter for regret, as those who wished for information could easily find what was suitable to themselves in the statements of that veteran authority who presides over the fruit department. As some, however, might imagine that what was said respecting the forcing of vines could have but a remote reference to those growing in a greenhouse, which might be said to be gently assisted rather than forced, we shall at times advert to a few prominent points, and the first of these shall be the

Pruning.—It has been said that the donkey first taught the art of pruning the vine; man being merely an imitator, after seeing the effects of that very wise but much abused, and nicknamed *stupid,* animal cropping the points of the young shoots. Be this, as it may, one thing is certain, that seemingly trifling facts when reasoned upon evolve great principles. Even in countries where the vine is a native, climbing the rock and festooning the tree, pruning is resorted to; and how much more is it necessary under our glass roofs, where the concentration of the greatest possible vigour and fertility in the smallest possible space is the chief object aimed at. When once the matter is thoroughly understood, the process of preparing for pruning by *disbudding* in summer will become the chief subject for consideration. The whole of the phytological questions involved in such a system we could not now find room for, though the unfolding of them would shed a light over many directions that, to the uninitiated, seem obscure and contradictory.

This *pruning* is best performed in the autumn, when the leaves are fast losing their green colour, for then, though there will be little assimilation of fresh matter, yet the slow vital action still continued will swell and distend the parts retained, much more than if that action had been extended over the whole of the branches, and more especially if these branches to be cut away had been gradually deprived of their buds, though the leaves had been allowed to remain. The leaves on the stem, or parts left, should be allowed to hang until they drop or become yellow. Shortly after being cut, whether upon the alternate rod or the spurring system (the last being the best for a greenhouse) the shoots may with propriety be unfastened from the roof, and trained horizontally along the front inside; the advantages of which will be the enabling the plants on the stage to receive the whole of the light from the roof unobstructed, the preventing the necessity of getting among the plants for picking up fallen vine leaves, the keeping of the vines more cool if much fire is needed during the winter, and the ensuring a more equal breaking of the buds in the spring from the whole of the stem being placed in a similar temperature.

Now, says one of our friends, this is all very well, though rather tantalising to some of us; for there, now, are my vines that were neither disbudded in summer nor pruned in autumn, but they are safe enough yet, because no more fire has been used than to exclude frost. But there is my kind neighbour, *Mr. Meanwell,* who was resolved to give me the go-by this season, and astonish my family as well as his own with his early geraniums, fuchsias, &c.; but he forgot that the heat he gave to his flowers would accelerate his *unpruned* vines, and now he is in a pretty quandary, for his vines are all upon the move, and his favourite Sweet-water has pushed nearly half-an-inch; and when he tried to prune them, the cutting of the smallest shoot brought such a flow of sap, that—fearful it would act like a small *syphon* when employed to empty a wine barrel—he had recourse for stopping it to plasters of pitch, resin, and wax: all of which evils might have been avoided if we had been *repeatedly* told to cut our vines "in the autumn."

In all such matters we hold two principles: the first is, that apologies and bemoanings for evils and derelictions of duty will not rectify the matter; the second is, that it is better to attempt to remedy what is wrong *late* than *never.* To our friend, therefore, we say, prune your vines directly, before the sap is in motion, and keep the house as cool as you can for several days afterwards. To his neighbour, we say, let pruning alone. Some wise men would say, prune by all means, and let the vines bleed if they will; the expanding shoots will soon monopolise the juices that are *left;* we think not so lightly of wasting these juices. When the vine is fully in leaf it may be cut then with impunity, so far as bleeding is concerned; because the double processes of assimilation of fresh matter and the perspiration from the leaves will leave no unappropriated fluid to bleed. Thin and prune these vines when they are in leaf, and let them alone until then? No! here there would be a waste of energy; fertile vigour would be dispersed over many channels, to be afterwards discarded, instead of being concentrated upon the few that were destined to be retained. Besides, the check given to the reciprocal action between the roots and the branches would cause a considerable time to elapse before the branches left would receive more nourishment in consequence of the others being removed. What is to be done then? Simply and quietly go over the vines when the buds are from a quarter to half-an-inch in length, or even more, and with the thumb or fore-finger quickly *rub* off all the buds upon the wood which you resolve ultimately to remove, and no bleeding will ensue. Mind you must not *cut* them off close to the wood from whence they issue, or you might as well cut off the shoot at once. Any time after the plant is in full leaf you may remove the disbudded parts, which will often present different appearances; generally, if very long, most of them will be dead, some will be somewhat alive, though not increased in size, and in a few there will be a little exudation of cambium matter from the liber, or inner bark, where the bud was rubbed off.

By this means, therefore, the resources of the plant are pretty well as much husbanded and directed into defined and desired channels as if pruning had taken place in the autumn. The buds left will be invigorated, though at first they will not be able to monopolise all the sap that supplied the others. Hence, for some time the sap will rise into the disbudded part, and descend again when the stimulus is removed, until the greater expansion of the buds left monopolise it entirely. A similar operation you may see in working *rapidly* the handle of a pump, where the bore of the tube is larger than the delivering jet. The water will rise above the jet; but that would not be the case if the jet was larger in size. The rising sap, therefore, may be made to flow upwards, downwards, and horizontally, to where there are vents for its reception; and where some exist in the shape of buds and branches, it will make them for itself, by stimulating the organisable matter stored during the previous season. Its general course, however, is upward, and, therefore, in the vine the largest buds are generally formed near the points of shoots, a matter of great importance, so far as disbudding and pruning are concerned; but that will enter more into summer management then what is necessary to be attended to now. The matters referred to are as important in other plants as in the vine, though they may not show mismanagement so quickly. Much evil has been done by two classes of phytologists contending with each other—one asserting, that it is the swelling of the buds that causes the ascent of the sap; the other asserting, that it is the rise of the sap that causes the buds to swell and expand. Before the principles of pruning can be well understood these contradictions must be harmonised. And they may be perfectly so, for both are right. The expanding of the buds, and the rising of the sap, are each in turns relative and co-relative cause and consequence to the other. No wonder, though wise men smile at us, when from looking at a fact from different points of view, we squabble as lustily about it as those clever fellows who were within a little of *cudgelling* each other, because about the *chameleon's* colour they could not agree. R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

Lœlia Superbiens (Most superb Lœlia).—The finest plant in Europe of this noble species may now be seen in full flower, in the London Horticultural Society's Garden, at Chiswick. Such persons as have not seen this plant can have no idea what a truly magnificent specimen there is in cultivation. We had the gratification of visiting the gardens yesterday, for the express purpose of seeing this splendid orchid in full beauty. The pleasure of the spectacle it presented was so great that we were tempted to take notes, in order to describe it to the readers of The Cottage Gardener. We had the pleasure to see it a few days after it arrived at Chiswick; it then filled an entire case, and this must be at least seven years ago. We have witnessed its progress, year by year, ever since up to the present time. It immediately began to grow, and has continued to flourish, sometimes producing more and sometimes fewer flower-spikes. This year it has more than it ever had before: no less than nine spikes of its truly regal flowers are now fully expanded. Several spikes have each as many as fourteen flowers; the whole averaging more than ten each, as there are nearly one hundred flowers upon the plant. So large is the plant altogether, that the cultivator of the usual-sized plants is astonished at its magnitude. Its width one way is more than six feet, and across the other way it is three feet, whilst in depth it measures very nearly four feet. The interior space of these measurements is thickly filled with pseudo-bulbs, all perfectly healthy. These are generally more than a foot long, the fine leaves in pairs upon them. The leaves measure also a foot long, and average three inches wide; they are thick and fleshy. The flower stems rise from the top of the pseudo-bulbs made the year previously. They are at least five feet long, bending gracefully with the large heads of flowers; the whole forming one of the finest objects of floral beauty, even among orchids, we ever saw. The colour of the flower is in its greatest amount a deep rose, variegated with dark red. The labellum is a rich crimson, striped with yellow. Each flower measures nearly four inches in length, by three in width.

Such is the description of this noble plant. We are sensible that we have scarcely done it justice. Our principal object, however, in choosing this plant for our week's essay, is to describe the peculiar treatment it requires, in order to grow it to something like perfection. The temperature of the country where it is found is cool, scarcely ever exceeding 60°, and often falling as low as 45°. In accordance with this, the plant at Chiswick is constantly kept in a cool stove, where plenty of air is given on all favourable occasions. The plant does not require a pot, or a basket, but should be hung up to the roof by itself. Suppose a newly imported plant should arrive, we should advise it to be cleared of all dead matters, excepting the block of native wood it may be attached to; then pass some strong copper wire under the mass, in such a way that the pseudo-bulbs and their leaves will hang up in the same position they did on the native tree. Then, when the wire is properly secured round the plant, hang it up in a cool stove. Add no moss to the mass, as that only rots the roots in winter. When the plant begins to grow, and put forth new roots, let it be gently syringed, morning and evening, during fine weather. Persevere with this treatment till the new pseudo-bulbs are fully grown; then cease the application of water, and lower the temperature of the house. This will accord with the wants of the ordinary plants in the stove at that season. Plants that have been growing—or rather attempting to grow—and have been some time in culture, perhaps in the warm, moist orchid-house, may be just now taken out of their pots or baskets, and hung up and treated in a similar manner as the newly imported plants. We are happy to find this treatment corresponds with that which Mr. Gordon practises with his fine plant at Chiswick. We are bound to admit that Mr. Bassett—a name familiar to our readers—does grow and flower this fine species in a different manner to the above. His method is to pot them in pots filled with broken potsherds, and nothing else amongst them. He finds them to do tolerably well in that stuff; but we think it unnecessary. He, like ourselves, places his Lœlias in a cool house, keeps them moist when growing, and quite dry when fully grown. Perhaps it would be desirable to grow small plants in that way, till they made bulbs strong enough to flower. There is one advantage our hanging-up system has above any other, and that is, a freedom from the attacks of devouring insects, such as cockroaches and woodlice—those pests and destroyers of young roots, shoots, and often of flower-stems too. If our plant is hung up and isolated, so that none of its leaves touch any other plant, and the wire rubbed over occasionally with some adhesive substance like bird-lime, none of these destroyers can possibly reach it.

Dendrobium Speciosum.—A noble plant of this fine orchid was exhibited on Tuesday, the 19th of February, at the London Horticultural Society's rooms in Regent-street, by the Rev. C. Fox Chawner, Rector of Bletchingly. It was growing in a large pot, and measured fully three feet across. It had more than thirty long spikes of its beautiful creamy-white flowers, the labellums or lips of each being beautifully spotted with crimson. Mr. Duncan, the gardener, stated that this handsome plant had been grown in an intermediate house—that is, a house between the heat of the greenhouse and the stove—the temperature varying from 45° to 55° in winter, and from 55° to 65° in summer. From May to September it was kept in a cool pit, where it began to show flower. It was then removed into the above-mentioned intermediate house, and moderately watered. With this treatment it produced the above-described mass of blooms.

This plant is a native of New Holland, where the air is much drier, and often cooler, than in the districts of tropical America and Asia, where orchids are generally found. Mr. Backhouse, when travelling in Australia, observed a very large specimen of this plant growing in the cleft of an inaccessible rock, near to the town of Sydney. In this place, secure from the rapacity of the keenest collector, the plant flourished and flowered yearly in great beauty. We mention this to show that this plant does not require much stimulating matter to bring it into a florescent state.

Just at this season there are several plants of *D. speciosum* in flower in the neighbourhood of London. We have had the pleasure of seeing a magnificent one, with eighteen much larger spikes on it than the one exhibited at the rooms in Regent-street. This was in the Horticultural Society's Garden at Chiswick. On the same day, we saw one in flower at Mrs. Lawrence's at Ealing Park, with about a dozen spikes upon it. The peculiar treatment this plant requires to bring it into a flowering state we must defer to another opportunity.

FLORISTS' FLOWERS.

We intend giving a rather long essay upon this part of our labour shortly. At present, we need only remind our friends that there need be no relaxation in the two necessary elements of success, in bringing to the standard of perfection those highly prized flowers. These two elements, or qualities, are *unremitting attention*, and *correct judgment in applying all the means* necessary to that end. T Appleby.

THE KITCHEN-GARDEN.

Angelica.—Sow this vegetable in pans, if possible, on a slight heat, to be transplanted into rows three feet apart, and two feet from plant to plant next month, on a well trenched and manured piece of ground.

Asparagus Plantation.—Take advantage of all favourable opportunities for well scarifying the surface of the soil, which has already been well forked over, and now become pulverized. Sow for obtaining the next season's stock of plants, and with all possible speed prepare also for this season's planting, which is now fast approaching.

Early Cabbage and Cauliflowers.—Encourage an early luxuriance by frequent application, in small quantities, of strong proof liquid manure; the colder and moister the weather, the more their growth may be thus promoted.

Globe Artichokes.—Plant the suckers, and shelter them at first a short time with the sea-kale pots, which may now be dispensed with for the latter vegetable, or evergreen boughs.

Sea-kale.—The early forced plants should now have their crowns examined, and if not already cut down to the earth's surface, all such as require it should be cut down at once. Those putting forth a number of shoots should be thinned of all small and superfluous buds, or shoots, and a portion of the best only allowed to remain, again to be thinned in a short time.

Peas.—Sow now the full crop of the best *Marrow Peas*, such as the *Knight's Green* and *Woodford Marrow*, the *Scimitar Blue* and *Dwarf Imperial Blue*. These are all well-proved summer peas for an amateur or cottage gardener.

Kidney Beans.—Sow in heat, to harden off as soon as up, for transplanting on slight-made hotbeds in sheltered situations; to be protected with old lights, if any to spare, or garden mats, &c. Keep the earth's surface, about those already growing in heat, well stirred, and apply tepid liquid manure water. Place strings to a few stakes on each side of the rows, on small brushwood short sticks, in order to keep the plants from falling into disorder.

James Barnes

MISCELLANEOUS INFORMATION.

HISTORY OF AN APIARY.

(No. 2.)

(*Continued from page* 203.)

According to the desire which you expressed to me in private, shortly after the receipt of my former communication, entitled "The History of an Apiary," which appeared in The Cottage Gardener of the 3rd week in January last, I will endeavour to furnish you with an account of my experience as a bee-master from the very commencement of my practical acquaintance with the subject. As I said before, I am confident that a narrative of experience in the management of bees, wherein instruction should be agreeably blended with anecdote, would prove eminently acceptable to not a few. I remember, when I first heard of Mr. Cotton's work, "My Bee Book," being especially attracted by the *title*, from which I was led to hope that I should find a detailed account of the author's own individual experience. Probably, some of your readers will recollect themselves to have indulged similar hopes; in which case, I need not remind them of their disappointment in this instance, which they shared equally with myself; for whatever be the merit of that book (and interesting it undoubtedly is), it contains as little of this kind of information as any other bee-book which has come under my notice. Perhaps Mr. Cotton may be induced at some future time to supply this desideratum in apiarian literature; such a work, written in his lively style, would be sure to please. In the meanwhile, although I have no very extensive sources of information in this line to produce, I think I may contrive to afford some amusement to your readers; craving your indulgence, therefore, even should I bring forward but little addition to ancient bee-lore, I will have done with this proem at once.

When I commenced bee-keeping, I may truly say I was profoundly ignorant not only of the practical and profitable management of these very interesting insects, but even of their economy and habits. Previous to the year 1844, (which was the date of the establishment of my first apiary), I had certainly seen many a goodly row of hives—had examined with wonder and admiration many a transparent honeycomb, and knew well to distinguish between the flavour of Scotch and English, and of Narbonn and Jersey honey; but only on one occasion had I been present at the plunder of a hive (and subsequently assisted in cutting out the combs), when I stood at a respectful distance in the dusk of an autumn evening, and watched the process of wholesale murder, without exactly comprehending the mysterious operation. I was then an urchin of nine years old, so that I gleaned but few facts in apiarian science on that occasion. I believe, however, I may refer the origin of my fancy for keeping bees to that early period. But it was not till 1844, when I had returned home from Oxford to spend my first long vacation, that I was able to indulge my fancy. Some time in July of that year, I got hold of Huber and Bevan on Bees; the one treating practically, the other scientifically on the subject; both these works so fascinated me, and absorbed my attention with their interesting revelations, that I was led to put into immediate execution a plan which I had long meditated, of starting an apiary. In a very few days, accordingly, I had the pleasure of seeing a good-looking cottage hive established in my garden (for which I paid £1); having selected it after *external* inspection only—such being the custom of the place—from the stock of a small farmer in the neighbourhood. The age of the hive I was assured did not exceed two years, and it certainly was clean-looking and very populous, but I had my misgivings as to the *weight*, which I forgot to ascertain, as I ought (not that it would have affected the bargain), at the time of purchase. The very next morning after the purchase saw me busily occupied in knocking up a rude seat in front of the hive, where I used to sit every day for many minutes together at a time: now watching, with almost childish pleasure, the egress and ingress of the bees—now speculating upon the future increase of my stock, and the honey harvests which I should reap. Huber's experiments and discoveries, however, which filled my mind, were very different in point of interest to this my daily occupation, which soon grew wearisome, at the same time that my passion for the study of bees grew in proportionate intensity. It was not enough to know the exact number of bees which made their exit in a minute, nor of those which returned, how many were laden with *pollen*, or (as, from the absence of pollen on their thighs, I conjectured) with *honey;* nor did an occasional peep into the interior from the bottom, at eventide, tend to satisfy my curiosity in a much greater degree. So, having soon discovered the poverty of my hive, I came to the determination of sacrificing it to my love of experiment. I was further strengthened in my purpose by the statements of Mr. Nutt, whose book fell into my hands about this time. Its marvellous promises, and the author's enthusiasm, have turned many heads, both young and old. I, for one, was completely fascinated by it, so that Huber and Bevan appeared tame in comparison, and were laid aside for the present. The gentleman (from whom I had borrowed the work), assured me that some years before he, like myself, had caught a portion of Mr. Nutt's enthusiasm, and, with a full belief in his promises and figures, had had a set of boxes constructed in exact accordance with his directions, which he persevered in working for several years, until, after the failure of repeated trials and much vexation and trouble—not having, moreover, obtained a single pound of honey—he had given up the keeping of bees in disgust; and nothing would persuade him to believe Mr. Nutt's system and book as otherwise than a hoax. On hearing this story, I bethought me of my own bees, and of the plan of which I had been thinking respecting them; so I requested him, if he had no present intention of using them, to make the boxes over to me for a time. To this he kindly and most readily consented, and they were speedily transferred to my care. On examining them at home, I found them in good order, and quite ready for use. Being nothing daunted by the disappointment and warnings of my excellent friend, and uninfluenced by the similar experience of every one else in the neighbourhood who had given the system a trial, I resolved to persevere in my plan, trusting that by greater care and attention I should succeed where others had failed. But I must conclude my paper for the present, hoping to resume the subject shortly. —A Country Curate.

MY PHYSIC GARDEN.

By a Physician.

No. 5.—Violaceæ.

This order is much better known as furnishing a delightful perfume than for the importance of its medicinal virtues. The common violet, the double pale blue variety of it (known as the Neapolitan violet), and the double purple, or Russian violet, are amongst the most delicately scented plants we have; and, from one or the other being in bloom all the year round, they are never likely to fall under the contempt to which people as well as plants are obliged to submit at the arbitrary will of "fashion." The pansies, too, which of late years have been brought to such great perfection, are members of this order, and are chiefly obtained from two scentless species of violet, Viola tricolor and Viola altaica.

These are the only violaceous plants commonly grown in England which are regarded with interest;

and these possess an emetic quality in their roots which enables them to be given in the place of ipecacuanha. The roots of all the annual and herbaceous species of the order partake of the same property in a greater or less degree, and this is the only general medical character in them which deserves comment.

Violet (*Viola odorata, L.*).—

Sweet flower! spring's earliest, loveliest gem,
  While other flowers are idly sleeping,
Thou rear'st thy purple diadem,
  Meekly from thy seclusion peeping.

Thou, from thy little sacred mound,
  Where diamond dew-drops shine above thee,
Scatterest thy modest fragrance round,
  And well may nature's poet love thee.
Bowring.

Few flowers can lay claim to being so universally admired as the violet; and it affords a lesson which cannot be too deeply impressed upon the mind of youth and inexperience, that good qualities, when combined with modesty, will always command greater respect than when thrust upon our notice by assurance and self-sufficiency.

Like many other plants whose action upon the human frame is not very perceptible, unless used in considerable quantities, the violet has had great notoriety for some years past in the cure of various disorders; but the experiments of late years tend to throw discredit upon its claim to the greater portion of its renown. The syrup made from an infusion of the flowers has long been known as a mild and agreeable laxative, and is really a very useful medicine for young children; it is combined with an equal quantity of oil of almonds, and one or two teaspoonsful are then given to newly-born infants. The syrup is also found beneficial for sore throats. The seeds and root likewise possess similar properties; and the latter is also a good emetic, if half-a-drachm to a drachm of it be taken. The leaves of the violet are frequently bruised and applied to bruises; and the flower was so highly esteemed as a remedy for weak lungs, that a conserve, called violet-sugar, was, in the time of Charles II., continually recommended by physicians to their consumptive patients. On the continent, an infusion of the dried flowers is even now very generally used as a sweating drink in colds and slight fevers. The Romans had a wine made of the flowers; and it is said that they are still used in the preparation of the Grand Signor's sherbet. Old Pliny had so high an opinion of their virtues, as to assert that a garland of violets worn round the head would prevent headache or dizziness, but modern writers know this to be an error, since a number of violets kept in a small apartment have produced faintness, giddiness, and even apoplexy and convulsions in some constitutions. This is, after all, but another proof that no pleasure is altogether free from bane.

Heartsease (*Viola tricolor, L.*).—The heartsease has ever been a favourite flower amongst our countrymen, and on that account has received many provincial names, the majority of them bearing some allusion to *love*. In days of superstition, and, it would seem, even in later times, it was called *Herb of the Trinity*, a name used, says a severe writer of the middle of the last century, by "such physicians as are licensed to blaspheme by authority, without danger of having their tongue bored through with an hot iron."

Yet marked I where the bolt of Cupid fell:
It fell upon a little Western flower,—
Before, milk-white,—now purple with Love's wound,
And maidens call it *Love-in-idleness*.
Midsummer Night's Dream, act 2, scene 2.

When strongly bruised the heartsease gives a scent resembling that of peach-kernels. A decoction of the plant was formerly a favourite remedy in inflammatory diseases of the lungs, and it is still used by some French physicians in chronic affections of the skin. The root (like that of most plants in this order) is emetic, but not sufficiently powerful to become of general use.

EXTRACTS FROM CORRESPONDENCE.

Chapman's Prince of Wales' Plum.—To those of your readers who happen, at this time, to be making their selection of fruit-trees, the following notice of Chapman's Prince of Wales plum may be interesting. A description of it appeared in the *Gardeners' Chronicle*, December 13th, 1845; and I was induced to order a couple of young trees from Brentford-end, the place of its nativity. One I trained as a pyramidal, but allowed the side branches to spread a greater distance from the stem than is the usual practice with trees so trained. It was root-pruned in 1847, and is now only 7 feet high; yet it bore, last year, upwards of 12 dozen fine plums. To show that I have not exaggerated, or been mistaken as to the number, I may mention that the bulk of them were committed to six bottles of large dimensions, each containing two dozen, and some few were eaten from the tree. In 1847, the produce was about 15 plums; and in 1848, about twice that number. The other tree I allowed to grow up into a standard; but its situation is unfavourable, and it has produced but sparingly as yet. In 1846, I budded a strong stock with this plum, and trained it as described above. This tree is now eight feet high, and is covered with bloom buds. It produced four plums last season, coming into bearing like the other, in its third year. The Prince of Wales is a seedling from the Orleans, and resembles its parent in colour, except that it is of a redder tint. It is larger, and more oval; and is quite equal, perhaps superior to the Orleans in flavour; but to make it a good dessert plum requires here a better season than we had last year. In 1848, the flavour was excellent. For certainty of bearing, this plum will not easily find its match. The frosts, last spring, which were most unmerciful to the bloom of my pear and plum trees, seemed to have no effect whatever upon that of the Prince of Wales; for, although its flowers expand rather later than those of other plums, they had to encounter some very trying weather, and I greatly feared for the consequences. I can safely affirm that Mr. Chapman, in describing his plum, has not exaggerated its merits in any one point.

Although I have not met with equal success with other plums trained as pyramids, and root-pruned, yet I am satisfied that this class of fruits is greatly benefited by this system of treatment, where early fruitfulness is required. The roots of the plum, unlike those of the pear, are always near the surface, and within easy reach of the knife of the operator. Those who do not require a very symmetrical form in their trees will find them generally run more readily into the balloon form, which saves the trouble of that incessant stopping of the upper shoots, which, in most cases, would be better avoided, and allows the tree to grow larger; and, consequently, if well managed in all other respects, to produce more fruits in the second year, after it acquires a bearing state. In order to preserve the pyramid form of my Prince of Wales, I was obliged, last year, to bend down its branches, and confine them with strings leading downwards, either to the stem or to pegs driven into the ground: in this way, some of the branches became nearly horizontal. —REV. CHARLES BOYS, *Wing, Rutland.*

RESULTS OF POTATO PLANTING from October to May (December and February excepted):—

OCTOBER.—Planted *Knapsacks;* leaf-mould as manure. Taken up in July and August. Crop, good in quality but indifferent in weight.

NOVEMBER.—*Lancashire Pink Eyes;* old stable manure. Taken up in September. Crop, bad both in weight and quality.

JANUARY.—*Forty-folds;* salt and lime. Taken up in August. Crop, both heavy and excellent.

MARCH (first week).—*Ash-leaved Kidneys, Walnut-leaved Kidneys, Painted Ladies,* and *Fox's Seedlings;* stable-dung and leaf-mould, and the sets covered with charred refuse before turning the soil on. Taken up in June, July, and August. Crop, most excellent, both in weight and quality.

APRIL (first and second days).—*Large Late Ash-leaves;* fresh weeds and walk sweepings. Taken up in August. Crop, most excellent in quality, and *the enormous return of* 10½ *bushels to the rood.*

MAY (first week).—Planted a large breadth of soil with *Blues* and *Reds;* stable-dung and leaf-mould. Crop, not worth taking up as to *quality,* but the weight heavy.

The above statement of the enormous return from the potatoes planted in April may possibly require a word or two. This (the *Large Late Ash-leaved*) is a noble white tuber, a few roots of which I had from a friend two years back; he had *no name* for it; I gave it this appellation from the similarity of the leaf to the Early Ash-leaved kind. The haulm grows fully 36 inches high, consequently it requires a considerable distance from row to row. The return, however, entitles it to a first place among the *seconds* potatoes. I have taken up several roots which have had as many as 50 tubers, 30 of them weighing more than half-a-pound each in the aggregate.—LEIGHTON.

A DESCRIPTIVE LIST OF CAMELLIAS.

(*Continued from page* 271.)

SCARLET AND DEEP RED.

Powhattan.—Globular form, deep carmine colour.

Servi, d'Italie.—Perfect form, colour of port-wine; very pretty.

Strombio.—Superb flower; same colour as the last.

Sylvie d'Italie.—Deep blood red; superb flower.

Sophia d'Italie.—Very grand; of a lively red.

Turnbullii.—Deep scarlet, 2s. 6d.

Vauxii.—Superb form; scarlet crimson, 2s. 6d.

Wallichii.—Imbricated; fine crimson, 5s.

Zeffiro.—Imbricated; fine crimson; first order, 2s. 6d.

SALMON-COLOURED.

Bellini Major.—Very large; half imbricated; salmon-striated with white in the centre; very fine, 2s. 6d.

Brownii.—Very grand flower; pœny-shape; deep salmon, 2s. 6d.

Cinzia.—Anemone-flowered; rose salmon, 3s. 6d.

Cooperii.—Superbly imbricated; rose salmon, 2s. 6d.

Fordii.—Middling size; delicate form; imbricated round petals, very numerous; rose salmon, 2s. 6d.

Globosa coccinea.—Globular flowered; satin salmon-colour; beautiful form, 2s. 6d.

Henri Favre.—Imbricated; rose salmon, 2s. 6d.

Murrayana vera.—Shaded rose salmon; very large, 2s. 6d.

Mutabilis traversii.—Bronzed rose salmon, with one white line down the centre of each petal, 2s. 6d.

Rubescens striata.—Very large round petals; salmon red, edged with white, 2s. 6d.

Superba (*Palmer's*).—Very large flower; dark salmon; anemone-flowered, but very regular and thickly petalled.

T. APPLEBY.

(*To be continued.*)

TO CORRESPONDENTS.

⁂ We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense; and we also request our coadjutors *under no circumstances* to reply to such private communications.

STOVE PLANTS (*R. Green*).—Having a constant bottom-heat in your stove, furnished by a hot-water tank, with 12 inches of compost on the slates, you ask what plants may be kept plunged in this bottom-heat? You may have Ixora coccinea, Aphelandra of sorts, Rondeletias, Stephanotis, Allamanda, Clerodendrons, Lisianthus, Poinsettias, Justicias, and many others; but Mr. Appleby will soon give detailed lists of the best stove plants, and will distinguish such as do best with and without bottom-heat, and also whether of woody or of soft growths, and whether climbers, &c.

SCARLET GERANIUMS LEFT IN BEDS (*W. X.*).—You have left some scarlet geraniums in beds, as mentioned by Mr. Beaton, page 5 of the present volume, thatching them to threw off the wet, &c., but are told by some gardeners that you will fail as they did. If your scarlet geraniums are safe from the frost, we have no doubt of your success. Your neighbours having failed is no argument; their plants very likely "went to leaf" earlier than usual; on rich or damp soil they do so more or less every year. But we believe Mr. Beaton intends to offer the best remedies against this; and we all wish to hear and learn the garden difficulties of our subscribers. Meantime, cut away all dead parts from your plants, stir the soil among them as deep as three or four inches, and expose them to the influence of the weather as much as the frost will allow; and as soon as they begin to get overgrown in summer, with a spade raise them up a little on one side, so as to snap some of the roots, which will check their growth and promote their blooming.

BRUGMANSIA SANGUINEA (*G. K.*).—Yours are all large specimens of this that have been kept in a cool dry place over the winter, should now have a regular spring dressing; if they have made any fresh growth in January or February, such should now be cut off; and also all the young tops made since last August should now be pruned in to a couple of eyes; the plants will then appear stag-horn fashion; stir the soil in the pots, and give one good watering; after that, let them go on according to the warmth of the season, and not by forcing or any kind of confinement. The result ought to be, that buds would start from all parts of the head, and from a thick bush next summer.

FUCHSIA CORYMBIFLORA CULTURE (*W. H.*).—This should now have the green wood of last autumn cut down to the old brown wood, or nearly se; but the mode of training the plant must guide the pruning in part. It succeeds best as a standard, and for a succession of them these standards should be pruned close like a rose standard, at intervals of two months, from October to May, and they never want forcing, nor are they improved by it.

ECCREMOCARPUS LONGIFLORUS (*Ibid*).—This climber will do for many years in a large pot, and to be cut down to the surface every year and kept nearly dry all the winter. Scrape away the old soil from the surface of the pot, and add fresh, and see that the plant is not forced, or in any way confined from the air.

CUTTINGS AND SEEDS (*S.*).—In a very dry room over a boiler-house connected with machinery, and with a temperature of from 50° to 60°, you may root all the common kinds of cuttings on its window-sill, with a thin transparent blind to keep the bright sun from the cutting-pots; and for this purpose, even a few sheets of writing-paper placed against the lower panes would do. Place the cuttings in very small pots, and plunge them inside larger ones, with a little moss between the pots. Keep this moss damp, and lay a piece of glass over the large pot, and turn the glass upside down every morning, else the drops from the under side will damp the cuttings. You can get little squares of glass at the glazier's from a farthing to a half-penny a piece, that will answer this purpose, and be as good as new glass when done with.

NAME OF INSECT (*W. S., Dalston*).—Your insect is the true wire-worm, or grub of an elater beetle.

RASPBERRY SUCKERS (*A. A. Clericus*).—You do not state your whereabouts, but if you reside even in South Devonshire, it is very early for you to have "young canes springing up as thickly as a crop of peas round each parent stool, and now (March 4) half-an-inch above ground." Cut all of them down immediately, well within the ground, except two or three nearest each of the old stools; and if in so doing you sever a root or two, you will not render the old canes less fruitful. Continue to cut down all but the two or three reserved, as often as they appear.

BLACK BARLEY (*Pastor Rusticus*).—We are informed that Mr. Page, Nurseryman, Southampton, has a quantity on sale.

QUINCUNX ORDER (*J. Abbott*).—This means five of anything placed one at each of four corners, and one in the middle, thus:—

•   •   •
  •   •
•   •   •

You may obtain the *Black Prince Strawberry* of any nurseryman or seedsman advertising in our columns.

Tree Onion (*J. B., & J. R.*).—Our correspondents wish to know where, and at what price, they can buy some bulbs of this.

Semi-transparent Calico (*Several Old Subscribers*).—You will find the recipe for making this at page 123 of Vol. II., and is in its index. The mixture does as well for linen as for calico.

Poultry Diseased (*C. C. Muster, and Un Lecteur*).—Your fowls, troubled with a discharge from their nostrils, weakness of the eyes, and loss of appetite, are affected with *the roup*. Wash their nostrils thoroughly every morning with a little solution of chloride of lime; and give each a pellet as large as a horse-bean every morning, of the following mixture: gentian powder, and ginger powder, one ounce each; Epsom salts, one-ounce-and-a-half; sulphur, half-an-ounce; made into a paste with dripping.

Weigela Rosea and Forsythia Viridissima (*J. H.*).—Young plants of these, 15 inches high, and now breaking strongly from the bottom, should be cut down better than half their height, to render them compact and bushy.

Azaleas (*Ibid*).—Young plants that have got drawn and straggling may be cut well back now to make them bushy, if you can give them a temperature of from 55° to 60° to cause them to break freely. First wait for a month, and then you may almost command the same heat in a cold pit, or frame, kept close.

Cactus (*W. H. R.*).—Your young plant that has sent up three shoots from the bottom, had better be encouraged to grow as freely as possible during summer: placing it full in the sun. Four stems or leaves will not be too many for your plant.

Hydrangea (*Ibid*).—The fewer shoots you retain the stronger they will be. If you can give it plenty of room, and rich soil, we should advise you to leave three out of the six, though one huge corymb of flowers at the top of a single shoot is very pretty.

Various Queries (*Allan Dale*).—In *grafting fuchsias*, it is as well if both stock and scion should be of the previous season's growth It matters not what method is adopted, provided the two inner barks are made to adhere; and the plant is kept close, and shaded for a time afterwards. *Climbers*.—The Ipomea Learii had been too tender for a pot in such a position; try Mandevillia suaveolens, or Passiflora cœrulea racemosa. For the back wall to be green in winter, and yellow in spring, the Acacia armata would be beautiful. If climbers were desirable, the passiflora named, and P. Ballotii, and C lvillii, and Mandevillia suaveolens. To cover it quickly, to be cut out as the others grow: Lophosperma scandens, Cobœa scandens, and Eccremocarpus scaber. As the Kenneyda coccinea does so well, you might place in it K. Maryattae. *Lisianthus Russellianus* will flower well in a cold greenhouse, but it must be raised and grown in a higher temperature. If you inquire, we think you will be able to get cyclamen seed. See what was said lately about it by Mr. Fish. Sow the seed whenever you can get it.

Primula Sinensis (*B. C. Barton*).—To have strong plants to flower from November, and through the winter, sow any time within a fortnight or a month, in a cucumber-bed; if no such place where heat can be given, sow under a glass in the greenhouse; prick out, when up; occasionally repot during the summer; keeping them in a cool shady place during the dog-days; and use soil, consisting of equal parts good loam and leaf-mould.

Gladiolus Gandavensis (*Tooting*).—It will flower very well in the 5-inch pot, although its roots have come through the bottom. Give it water freely, so that the soil is never dry, and allow it plenty of air every day.

Ixia Viridiflora (*Ibid*).—The three bulbs of this having made thirteen shoots must have been in very good condition; no doubt but you will have six or seven spikes of bloom from them. See that they get plenty of air and water, as this sort grows tall and dislikes confinement The colour of this Ixia will please you much.

Yellow Geranium (*J. Bousfield*).—Pray do not lose sight of it. The safest way, if it is a species, is to cultivate it at Natal, and save seeds, which may come in a letter. If it is a tuberous-rooted one, the tubers would come dry in brown paper in a box with bulbs, but let it not be trusted that way until seeds are first saved.

Statice Latifolia (*A Subscriber*).—It will transplant in September, and now also. It prefers a deep rich sandy soil. You can increase it now by pieces of the roots which issue from the collar of the plant.

Removing Vines (*Hester S.*).—It is too late now to remove your out-of-door vine; but if you *must*, the thing is not quite impossible, but requires great care. A west aspect would do for your vine in the southern counties, but you do not say where you reside.

Branches of Apricots Dying (*Ibid*).—This is a common complaint; and there is no cure for it but to train in some young wood to fill up the space. Your apricot, 50 feet wide, is a fine tree. *Mistletoe seeds.* Send a stamped envelope with your address immediately.

Tropœolum Tuberosum (*Ibid*).—We very much fear your tuber of this is dead, as the plant has not yet appeared, but we have known them refuse to start for a long time. Shake it out of the soil, and if it is sound, repot it, and keep it as warm as you can till you see it sprouting.

Light for Seed Bed (*S. C., P. H.*).—Shade is best for the annuals until the seeds *vegetate*, and *then* sunshine and plenty of air. For *cuttings*, shade them from ten in the morning till three in the afternoon, when the days are hot; but in general, the more sun they stand, the faster they will root, but it is safer for you to shade.

Broken Cactus (*J. T.*).—Your cactus will do yet, though the main stem is broken. Cut the bottom of the main stem smooth, and also the stumps of the broken side branches, and put it in a small pot with sand only, placing it three inches deep, and it will soon form roots again. When you remove it to another pot, shake off most of the sand; the other pieces will also do for cuttings, and you may put them all in one pot, with sand, till they root. Give all a little water twice a week, and place them in a warm room.

Double Blue Hepatica (*J. N. P.*).—This dwindles, though other kinds thrive with you. Your soil does not suit it. Can you not change it? It prefers deep, rich, light loam, and an open situation. We would water it well in May and June. The maximum heat for *orange and lemon trees* is about 70°, and the minimum 40°, but they will bear ten more degrees, and eight degrees less; the grand point is to get them well ripened before October.

Epacris Cuttings (*W. M. H.*).—These are treated the same way as heath cuttings, and the plants are afterwards managed in most respects like heaths. Use good peat, with one-third sand, good drainage, and a cool greenhouse for the cuttings; fill a small pot half full of crocks, and then equal parts of fine sifted peat and silver sand, with a quarter-of-an-inch of fine sand on the top; press down and water, then mark the sand with a bell-glass that will just fit inside the pot; make your cuttings half-an-inch long and of recently formed young wood. After planting them within the circle, give them a gentle watering, and when they are dry place the glass firmly over them, and keep them in a shady part of the greenhouse, or a gentle hotbed, and attend to watering and keeping them free from damp.

Tropœolum Tuberosum (*Susannah, Coniston*).—Our correspondent says:—"In consequence of Mr. Beaton's remarks on 'Tropœolum tuberosum' I procured a tuber, and planted it and coiled it according to his directions. It flourished, and delighted me by its extreme delicacy of form, and at the same time was such a little spirited elastic creature, I called it the baby! One morning, to my extreme regret, I broke off the little green head, but I comforted myself by hoping that in time it might *perhaps* send out another. My hopes were more than realized; in about a fortnight *seven* or *eight* green heads appeared on different parts of the stalk, and it is running about in all directions, so that I really think what I thought an accident may prove an improved mode of treatment. May I add that I have made it a very pretty trellis of eight slender green sticks, about two feet long; these are placed round the pot, and form a pretty shaped vase; the sticks are bound together with strong green cotton, such as is used for crotchet work." You have fully proved that Mr. Beaton was right in saying that this Tropœolum ought to be trained by ladies. Your plant may do well, but we cannot recommend the tops to be nipped, and Mr. Beaton would never forgive us if we did.

Burgundy Pear-tree (*J. S.*).—Your tree is about 12 years old, and to a casual observer a flourishing tree. For several years past it has borne no fruit, but many of the small branches are dead, and the tree is full of small shoots which grow out of all the live branches, and not a fruit appears. Cutting out these twigs appears to be useless. Your pear is a common case, and, we fear, a hopeless one. Sometimes the dying tops are induced by a bad subsoil, but frequently also by the "worn out" character of the kind; for there is a "wearing out" in pears as sure as there is in apples. Thus, few can now grow the St. Germains, the D'Auch, the Crassanne, or the Brown Beurré, some of the finest pears we ever had, and perhaps equal to most of our new ones; they are doubtless wearing out, hence the necessity of encouraging fresh kinds. You will do well (as we think) to make the tree a flower support.

Shell-less Eggs (*Theydon*).—When a hen habitually lays eggs without shells, she has the disease called the *lush*, or *oon*. It arises from her digestion being torpid, and the certainty of this may be ascertained by feeling her crop; if this be hard, there is no doubt. Give her two teaspoonsful of gin twice a week, and give her nourishing soft food.

Vinegar Plant (*M. F. G.*)—Send your address (free) to Mr. George Brewin, Wortley, Sheffield; or to Mrs. Nanney, Caenby Rectory, Spittal, Lincolnshire; they kindly offer to send you one.

Spot on the Achimenes (——).—The spots on the leaves of this are said, by one of our correspondents (*F. N.*), to be caused by watering over them, instead of putting the water into the saucer.

Name of Pumpkin (*F. N.*).—We cannot tell this (green and white-speckled); the varieties are endless.

Furze or Gorse (*Ibid*).—The only successful mode of cultivating this is by sowing the seed where the plants are to remain. Sow early in April. The soil should be light and well drained.

Tanners Bark for Plunging (*J. C. K. R.*).—A correspondent writes as follows:—"In answer to your correspondent, "A. E. W.," last November, relative to the use of tan in a pit for preserving plants, you did not recommend it. I have used it this winter with success, and have not lost one healthy old plant or young cuttings, all taken early and potted off." Notwithstanding this success, we prefer sand, or coal-ashes, for the purpose. There is no harbour for fungi or insects in these.

Sap (*Pelerin*).—The idea of sap passing into the finer vessels of the leaves in the state of gas, is ingenious; but there are too many opposing facts and experiments demonstrating that it cannot be true.

Vines (*Tyro*).—The "small clear globules" on the leaves are not mildew, but probably moisture deposited upon them from the air of your house. We fear from your account you keep the air too moist, in proportion to the light we have yet. You will see if we are right by your vine shoots being too long jointed and weak. We cannot advise as to any book on *colours*, unless we knew your object.

Names of Plants (*S. Smith*).—No. 1. The Smooth Rivina, *Rivina lævis*. 2. *Centradenia rosea*. (*Constant Reader, Swansea*).—The heath-leaved sprig is *Nierembergia filicaulis*, a very beautiful greenhouse plant; yet good for bedding out. The other plant is *Alonsoa incisifolia*, also a greenhouse plant.

Lily of the Valley (*Ibid*).—Notwithstanding this is not the time to do so, you may take up a few plants and pot them, and place them in a pit with heat, from 50° to 60°. Do not be too free with the water-pot, nor yet let them want for moisture.

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WEEKLY CALENDAR.

M D	W D	MARCH 21—27, 1850.	Weather near London in 1849.	Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
21	TH	Benedict.	T. 53°—29°. S.W. Fine.	3 a. 6	12 a. 5	1 43	☽	7 23	80
22	F	Cambridge Term ends. Magpie builds.	T. 42°—36°. E. Fine.	1	14	2 43	9	7 4	81
23	S	Oxford Term e. Common Linnet's song beg.	T. 44°—30°. N.E. Fine.	v	15	3 35	10	6 46	82
24	SUN	PALM SUNDAY. Red Currant leaves.	T. 44°—27°. N. Fine.	56	17	4 18	11	6 27	83
25	M	ANNUNC., or LADY DAY. Earwig appears.	T. 40°—33°. N.E. Rain.	54	19	4 53	12	6 9	84
26	T	Dog's Mercury flowers.	T. 43°—32°. N.E. Fine.	51	20	5 25	13	5 50	85
27	W	Six-cleft Plume Moth appears.	T. 45°—34°. S.E. Rain.	49	22	rises	☺	5 32	86

ST. BENEDICT, surnamed "The Great," was born, about the year 480, at Spoleto, in Italy, and became a hermit at the early age of fourteen, but soon accepted the office of abbot to a neighbouring monastery, and again returned to his seclusion, disgusted with the manners of the monks. From that time, he sought to reform and elevate the monks of the West to a power equal to that attained by the Eastern monks. In 592, he laid the foundation of the celebrated monastery of Monte Cassino, and instituted the *Benedictine Order* of monks, which soon overspread Europe. The rules of the Order were founded upon pious and moral principles; but man was not created for seclusion and mechanical devotion; and the order soon became, like its predecessors, an instrument of avarice and ambition. This depravity and subversion of the Order did not occur until after the 9th century. St. Benedict died on this day, A.D. 543.

PALM SUNDAY is so called in commemoration of Christ's entrance into Jerusalem just previously to his sacrifice—on which occasion his disciples strewed palm branches before him. Decorating houses and churches with evergreens, on this anniversary, has been a practice in this country from a very early age; and the box and the yew being substituted for the palm of the East, is believed by some persons to be the reason why they are generally found near our churches. In place of the evergreens, or in union with them, the twigs of the sallow, with its yellow and velvet-coated buds, are now gathered on this day; and the expedition for obtaining them is called, in the north of England, "going a palmsoning." Many are the superstitions associated with this anniversary; but it was not until very lately that we heard of a conversation in a seed-shop, where the lady was urgent to have her flower-seeds, because, "if sown on Palm Sunday the flowers would certainly be double."

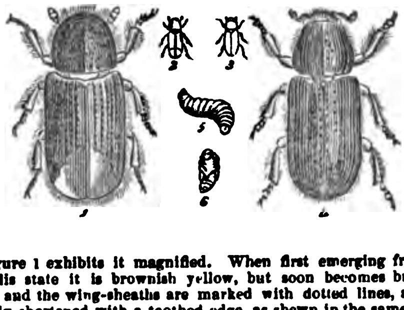
METEOROLOGICAL PHENOMENA.—During the last twenty-three years, the average highest and lowest temperatures of these days have been, respectively, 52° and 34.6°. The greatest heat was on the 27th in 1830, the thermometer then reaching 75°; and the extreme cold was on the 20th in 1845, when it fell to 16°. During the period, rain occurred on 65 days, and 96 were fine.

RANGE OF BAROMETER—RAIN IN INCHES.

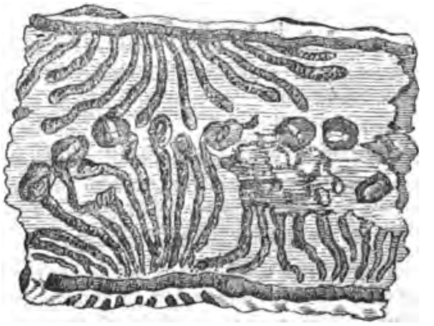
March		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
21	B.	29.625	30.157	29.467	30.017	30.495	29.643	29.659	29.448	30.300
		29.482	29.890	29.379	29.921	30.479	29.258	29.524	28.726	30.231
	R.	0.12	0.08	0.21	—	0.08	0.09	—	0.08	—
22	B.	29.596	30.151	29.409	29.739	30.381	29.203	29.543	29.638	30.197
		29.362	29.951	29.341	39.503	30.308	29.177	29.715	29.574	30.086
	R.	0.02	0.08	0.02	0.05	0.08	0.09	—	0.02	—
23	B.	30.128	30.183	29.555	29.570	30.197	29.317	29.810	29.860	30.037
		29.803	30.102	29.416	29.513	29.957	29.169	29.729	29.670	29.979
	R.	—	0.03	—	—	0.60	0.03	—	—	—
24	B.	30.222	30.221	29.699	29.655	30.121	29.338	29.919	30.105	29.986
		30.192	30.167	29.538	29.513	30.022	29.310	29.771	29.994	29.955
	R.	—	—	—	0.03	—	—	—	—	—
25	B.	30.123	30.130	29.734	29.644	30.032	29.387	30.011	30.130	29.914
		29.952	29.607	29.697	29.573	29.808	29.361	29.990	30.015	29.907
	R.	—	0.07	—	0.06	0.03	0.10	—	—	0.01
26	B.	29.698	29.629	29.756	29.805	29.899	29.710	30.017	29.858	29.896
		29.593	29.581	29.710	29.617	29.802	29.443	29.974	29.714	29.842
	R.	0.02	0.01	—	—	—	0 02	—	0.05	—
27	B.	29.863	29.763	29.719	30.032	29.874	29.790	29.996	29.669	29.570
		29.721	29.746	29.700	29.851	29.803	29.734	29.808	29.655	29.351
	R.	0.08	0.02	—	—	—	—	—	0.24	0.14

NATURAL PHENOMENA INDICATIVE OF WEATHER.—*Falling stars* usually occur during fine weather, but usually indicate a change. *Mice* squeaking and gamboling much more than usual behind the wainscotting of our rooms, foretel a change of weather, especially from fair to foul. *Missel thrushes* before storms are observed to whistle unusually loud, and to prolong their song until the very commencement of the rain. Hence, in some localities, it is called "The Storm Cock." *Moles*, when rain approaches, are unusually busy throwing up their hillocks, probably because the worms on which they prey then rise to nearer the earth's surface.

INSECTS.—We have lately seen so much injury perpetrated by the Typographer Bark Beetle—*Bostrichus typographus* of some naturalists, and *Ips*, *Dermestes*, and *Tomicus typographus* of others—that we are induced to publish some particulars, and a drawing of the insect, and its usual mode of attack. It is most fond of some of the fir tribe, but does not confine its visitations to them. The perfect insect is of the size represented by figure 2 in the annexed drawing;



and figure 1 exhibits it magnified. When first emerging from the chrysalis state it is brownish yellow, but soon becomes brownish black; and the wing-sheaths are marked with dotted lines, and are abruptly shortened with a toothed edge, as shewn in the same drawing. Its maggot is about a quarter-of-an-inch long, wrinkled and white. The beetle is found in this country in June. The male and female combine to form the hole through which she may gain an entrance to the inner bark; after which she proceeds alone to make those shafts and their branching galleries (see cut), at the end of each of which she deposits an egg. Nos. 3 and 4 in the annexed woodcut



shew the Scotch Pine Bark beetle (*Hylurgus piniperda*), of which a description will be found at p. 329 of our second volume, but of which we repeat a drawing, because we are enabled to add delineations of its maggot (fig. 5), and its chrysalis or pupa (fig. 6).

RESUMING, from page 230, our consideration of the roots of plants, so far as science throws such light upon the subject as may be beneficial to the horticulturist, we have now to offer a few observations, which, we regret to know, are opposed to the opinions of some of our coadjutors.

According to the usual acceptation of the term, the roots of plants do not emit excrements, yet it is quite certain that, in common with all the other parts of a plant, they perspire matters differing in their amount and composition in every species. The earth, in contact with the tubers of a potato fully ripe, we have found to contain mucillage, or gummy matter, and it has the peculiar odour of the tuber. That in contact with the roots of peas also contains gummy matter, and smells very strongly of that vegetable; and the freshly up-turned soil where cabbages have been growing emits an offensive stench. If plants are grown in water, that water acquires impregnations differing with each species vegetating in it; and, in addition to these facts, every gardener knows that the vigour and luxuriance of a crop is influenced remarkably by that which immediately before pre-occupied the ground on which it is growing; and this does not arise from the previous crop having robbed the soil of constituents required by its successor, but from its having something offensive. Thus, brassicas will not grow healthily upon soil where the previous crop was of the same tribe, but if the ground be pared and burnt they will grow luxuriantly; and the same occurs to ground exhausted by strawberries: if it be burnt and managed afresh, strawberries will grow as vigorously as upon fresh ground, but they will not do so if manure only is applied.

The fact that the roots of plants do give out peculiar and varying matters to the soil which sustains them, aids to explain why one rotation of crops is superior to another, as well as why fallowing is beneficial.

Fallowing gets rid by decomposition of any offensive excrementitious matters, as well as accumulates that which is desirable for plants; and one crop succeeds better after some predecessors than after others, because their exuviæ, or matters thrown out by them, are to that crop more useful as food.

Plants are very much benefited by having oxygen applied to their roots, being found to consume more than their own volume of that gas in twenty-four hours; and when applied by Mr. Hill to the roots of melons, hyacinths, &c., the first were found to be improved in flavour, the second in beauty, and all in vigour. Everything, therefore, that promotes the presentation of oxygen to the roots of plants must be beneficial; thus we find, that frequently stirring the ground about them promotes their growth; for, in proportion as the soil is loose can the atmosphere the more easily penetrate it. Moist earth rapidly absorbs oxygen from the atmosphere, as Humboldt has demonstrated, but dry soil does not; this affords another reason for frequently stirring the earth about plants during the droughts of summer; for well pulverized soil admits the evening dews, &c., more freely than consolidated ones, and consequently dews will be deposited more within their texture, and moisture is more firmly retained in such pulverized soils, inasmuch as that they are not so much heated by the sun's rays, being more pervaded by the air, which, like all gases, is one of the worst conductors of heat.

M. Schlüber has more recently published experiments upon this subject, and their results confirm those of M. Humboldt. No earth, in the following table, absorbed any oxygen from the air in which they were confined, so long as they were dry; but when moist, and confined in a similar bulk of atmospheric air for thirty days, they had absorbed its oxygen in the following proportions:—

	Per cent.
Siliceous sand	1.6
Calcareous sand	5.6
Gypsum in powder	2.7
Sandy clay	9.3
Loamy clay	11.0
Stiff clay or brick earth	13.6
Grey pure clay	15.3
Fine lime	10.8
Magnesia	17.0
Humus (vegetable mould)	20.3
Garden mould	18.0
Arable soil	16.2
Slaty marl	11.0

OUR floricultural readers will hear with no small pleasure, that the prospect of receiving a YELLOW GERANIUM again brightens. The following extract is from a letter we have received from the active and intelligent Secretary of one of our local Horticultural Societies:—

"In consequence of perusing your article on the best mode of sending bulbs, &c., to England from hot countries, I was induced to write to a near relative—the wife of a missionary of considerable influence, who has resided great part of his life in the colony of the Cape of Good Hope—asking her to make some inquiry as to whether the *Yellow* Geranium was really to be met with. Agreeably to my request, she wrote to Natal, but the flower is not (as you supposed) to be met with in that part of the colony, nor could she then hear of it. On making further inquiry, she was informed by a gentleman (I am not certain whether a missionary or a merchant) that he knew of three places where the yellow geranium is to be found; and I am promised, at an early opportunity, some seed if it can be procured. Believing that you and your readers would feel interested in this, I am induced to trouble you with this letter."

THE FRUIT-GARDEN.

Melons.—We have not said much about melon culture hitherto, for other matters which concern the majority of our readers have been somewhat pressing; knowing, also, that to many a good crop of melons of full flavour in July and August will be preferable to very early ones, which are double the expense, and by no means so highly flavoured.

As to fermentation of the manure, that we described in the No. for Dec. 27, under the head "Cucumbers:" the same process may be pursued with the melon, observing to "work" the dung as much, or even more, at this advanced period, when a sudden increase of atmospheric temperature is apt to excite imperfectly worked fermenting materials up to "burning pitch" suddenly.

We are now supposing the ordinary dung frame to be employed; and their culture in brick pits of any kind is so similar, that we need at present say nothing special on that head. In building the bed, we would advise the precaution recommended for the cucumbers, of raising a column of unfermentable materials beneath each hillock: this plan answers exceedingly well, and, indeed, renders the process safe. A bed for March should be about three feet six inches high at the back; but three feet, or even less, will suffice during the remainder of the season. Tree leaves, if at hand, should by all means be mingled liberally with the dung, in the proportion of one half, at least.

As soon as the bed is built, linings of long litter should be placed around it, to promote speedy fermentation; and in about one week the bed will have become very hot—hotter, indeed, than at any period afterwards; and now the temporary lining may be in part drawn aside (the object of forcing the fermentation to its highest pitch having been accomplished), and the bed must receive a thorough watering, using a double amount of water along the centre.

Preparation for the "hills" or mounds of soil may now proceed; and our practice is to hollow each centre, where the hillock is to be placed, a foot deeper than the rest of the bed; for the melon loves depth of soil; and, moreover, with this precaution it is impossible they should burn. We deem it necessary to be very pressing on the amateur as to precautions against burning; knowing that he is more likely in his ardour to make shipwreck on this point than on any other; those thoroughly experienced of course do not need so much caution. Thus, with one foot below the level, and about fifteen inches above, the melon soil will be above two feet deep in the centre, shelving off to about nine inches at the edge of the frame inside. Not that the frame should be soiled over entirely until the plants are becoming established; it is much safer to start the plants for a week or two at first in the hills, leaving a space all round the hills between them, and next the sides of the frame, of naked fermenting material. The policy of this may not be obvious at first sight; we will, therefore, explain it. After all the working or fermenting of the dung, some slight amount of noxious gases will remain, or be engendered in the bed: there is no way so ready or so certain to dissipate them as the application of water. Water, moreover, is needed in the dung, to prevent dryness, to counteract overheating, and also to assist in raising atmospheric moisture, so necessary to the well-being of the young plant until thoroughly established.

And now, as to *soil* or compost. We have known first-rate melons grown entirely in vegetable matter; we have also witnessed the same in a strong loamy soil. The success of the melon, as far as the soil is concerned, depends much on the relation the mode of culture bears to the soil in question. Those who use light or vegetable soils lay their account with a free application of water, at certain periods; those who use adhesive loams apply little water to the roots.

The *red spider* is the greatest pest of the melon, and the rock-a-head, which, in general, occasions much solicitude. If planted in light soils, containing much vegetable matter, they will, of course, grow very luxuriant; and then, if a check ensue through drought, the plants will generally become a prey to the spider. For such reasons, therefore, there is nothing like a sound loam of considerable depth. Nevertheless, as every amateur cultivator cannot always obtain this valuable article, it is well to know, that any moderately rich garden soil will succeed, if deep enough; and, if poor, it may be enriched with a portion of manures, or vegetable matters, in a half-decomposed state.

In making the hillocks, it is a good plan to fill the hollow formed to receive the soil with lumpy turf, fresh from the pasture or common: and on this the mound or hillock of compost. As to raising the young plants, the process is similar to that observed in cucumber culture; only, it may be observed, that the melon cannot well endure so low a temperature as the cucumber. We consider 70° as indispensable; 80°, however, will be found more suitable. They are potted off as soon as the seed-leaf is fully developed; and when they shoot, the central point is in general pinched out; this causes them to push a couple or more of shoots, and those are of a more fruitful character than those first formed, and will be required, without farther stopping, to train over the bed.

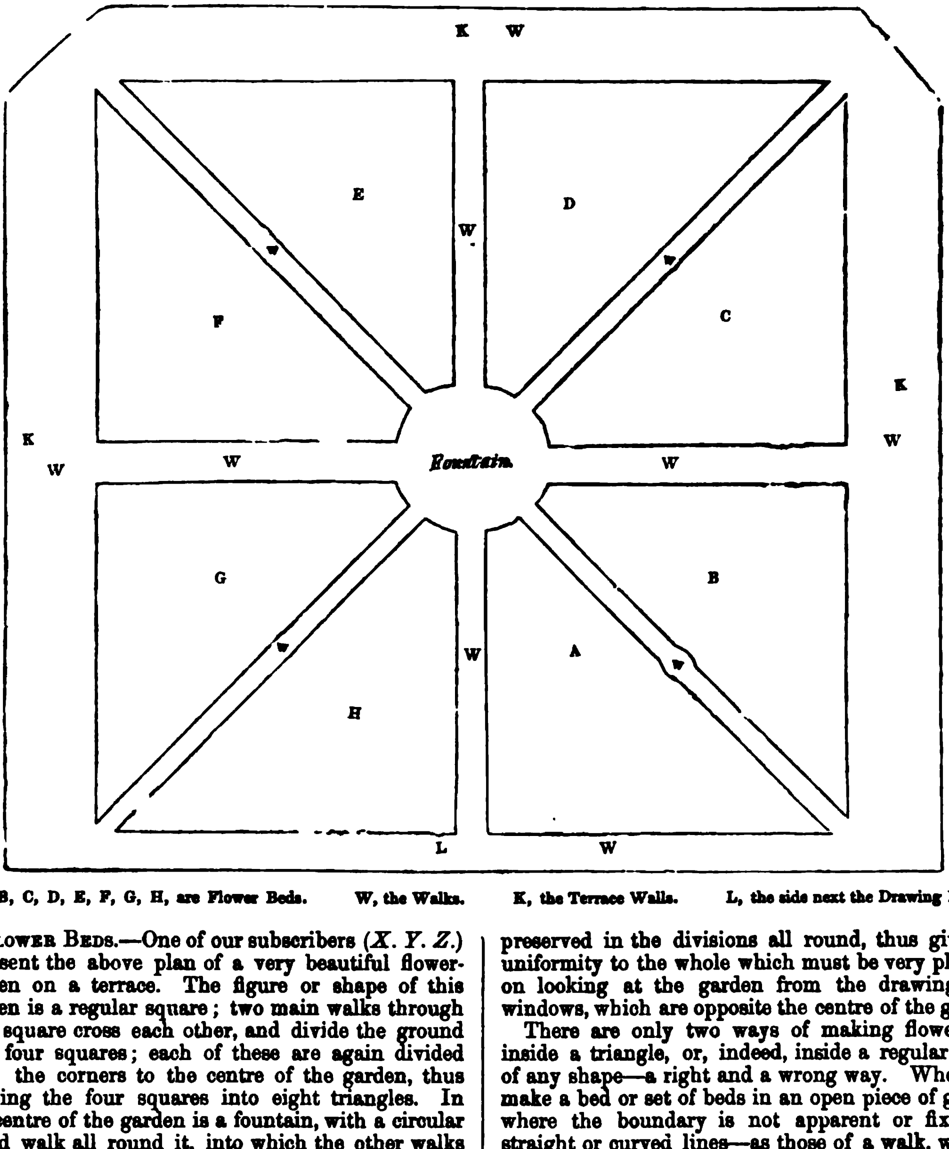
We consider two plants enough for a hill, and they may, therefore, be placed in pairs, in five-inch pots, in the potting process. The period of planting the hills must, of course, be ruled by the state of the bed: as soon as the heat is right, and the plants are established, the sooner they are out the better. Melons do not succeed well where they have become stunted in their pots; we have known them afterwards produce nothing but male blossoms.

The subsequent management, until they require to be finally earthed up, will be like cucumbers; to sprinkle the frame occasionally, and sometimes to water the plants, using always tepid water. When the plants begin to reach the outside of the hills, the soiling must be completed, and the surface should be made to slope from the hillock on all sides, thus leaving a convex surface; this keeps the crown of the plant and its stem dry, a necessary course in order to avoid canker, to which the melon is peculiarly liable, especially in damp and cloudy summers. It is a good plan to cover the surface of the bed with small pieces of slate, or fine gravel composed principally of small stones. The fruit will both "set" better and possess higher flavour. The pair of shoots from each plant must be pegged out in a proper direction as they advance; and if the plants stand one north and the other south, one shoot of each may be trained to each angle of each light; and when it nearly meets the angle, the point must be pinched off. Where frames are small, it is well to peg the advancing shoots in a serpentine direction. This will be found to give a greater number of eyes or joints in a given space; and moreover it is a well-known fact, that the farther the shoots extend, the more fruitful they become, and the finer the produce.

Soon after stopping the terminal point, side-shoots will sprout from almost every leaf; and if the plants have been properly managed, most of these will shew female blossoms as soon as they are a few inches in length. As, however, our paper must draw to a close, we must defer further remarks on the subsequent culture for another week or two, when we shall be soon enough for that part of the business. In the mean time, let the linings be turned about once a week or ten days, and as often topped up as necessary; remembering to keep up 70° by day, and 65° by night, allowing an afternoon advance of 10° when sunny. If the bottom-heat gets beyond 80°, let water be liberally applied between the hillocks, taking care to have all fiery heat well subdued by the soiling period. We think that no sort will suit the amateur better than the Beechwood green-flesh.

R. ERRINGTON.

THE FLOWER-GARDEN.



A, B, C, D, E, F, G, H, are Flower Beds. W, the Walks. K, the Terrace Walls. L, the side next the Drawing Room.

FLOWER BEDS.—One of our subscribers (*X. Y. Z.*) has sent the above plan of a very beautiful flower-garden on a terrace. The figure or shape of this garden is a regular square; two main walks through this square cross each other, and divide the ground into four squares; each of these are again divided from the corners to the centre of the garden, thus forming the four squares into eight triangles. In the centre of the garden is a fountain, with a circular broad walk all round it, into which the other walks terminate, so that either of the eight walks lead you up straight to the fountain between two triangles; the sharp points of the angles being cut off next the fountain to make room for the circular walk round it. There are four flower-beds in each of the eight triangles into which the garden is divided, or 32 beds in the whole; the four beds in each division are of different shapes, but these four shapes are preserved in the divisions all round, thus giving a uniformity to the whole which must be very pleasing on looking at the garden from the drawing-room windows, which are opposite the centre of the garden.

There are only two ways of making flower-beds inside a triangle, or, indeed, inside a regular figure of any shape—a right and a wrong way. When you make a bed or set of beds in an open piece of ground where the boundary is not apparent or fixed by straight or curved lines—as those of a walk, wall, or the dry borders of an adjoining shrubbery—the beds may be made of any shape selected; and although you may discover, when you come to plant such beds, that the plan of them is radically bad, and altogether unfit to form a proper or pleasing arrangement of colours out of them, still, as far as their shapes are concerned, no fault can be found in them. Not so, however, when you come to cut out beds inside a regular figure, as those in the garden of X. Y. Z.; *the lines of such beds must correspond with the lines which bound the figure;* these triangles are bounded by straight walks, therefore all the sides of the four beds which come next to the walks must be straight also. You cannot deviate one inch in the line of the flower-bed from that of the walk which passes by it without a breach of the fundamental principle of lines and forms, or, if you like it better, without producing an error which is self-evident to the senses, for if two contiguous lines do not agree in every respect, they must disagree.

For every flower-garden I have yet seen laid out according to these rules, I have seen ten planned without any reference to them at all; I need hardly say, therefore, how much pleased I was with the plan sent by X. Y. Z., which is nearly a perfect model of artistic skill. I may be wrong in saying *nearly*, because the plan is only a rough sketch and not drawn to a scale. What I object to is the turn given to one end of the bed next the fountain in each division; the ends farthest from the fountain are round, and if this round end comes as near to the walk as is shewn on the plan, it is a departure from the strict rule which the artist has shown in the rest of the composition. It is not necessary to speak of the outlines of these beds in those parts which do not immediately join the walks, because 10 artists might fill in the beds in 10 different ways, and all be true enough in principle. The flower-beds in question are not more than two feet wide in most parts, and two of them are much larger than the other two in each compartment or triangle; and X. Y. Z. says, "our plan has been to fill the two largest beds in each compartment with mixed flowers, and the two smaller each with a separate flower; the difficulty is to arrange what to fill the latter with in order to look well."

To be able to know how best to advise X. Y. Z., I ought to know what convenience he has for wintering half-hardy things for this garden; what plants, therefore, I shall name as suitable for such a garden will be as useful to any other subscriber, whose flower-beds are not much larger than from two to three feet across in the widest parts. The arrangement of the colours must be left to the planters, for reasons already insisted on, but—for a regular figure like this, whether a square or a circle—I may remark, that the effect of the whole would be much heightened if the figure was divided across the middle, if only with an imaginary line, and all the beds on one side to have corresponding colours in the beds opposite to them; and where the ground is level, or nearly so, all the beds thus corresponding ought to have the plants of the same height as well as of the same colour; and, still farther, if the ground is lower on one side, the plants on the lower side ought to be taller sorts, but still keeping to the same colours as before.

To those who look to masses of colours only, without reference or knowledge of the plants which produce them, a regular garden like this should have all the plants on one side of the figure repeated in the corresponding beds on the opposite side, and for effect only; that is the best way. But when one has a knowledge of plants individually, he will think his garden more rich the more kinds of plants he can show off in the arrangement; and here comes the difficulty of flower gardening, and the difficulty is increased when the beds are small, for then you are confined to the use of dwarf plants only. There are many plants, however, which can be trained down to a given height to suit the size of a bed. A white-flowering plant is the best to use in a bed to divide two colours which might otherwise neutralise each other; or, say you have three rows alongside of a walk, or three beds in a line, one row or bed is to be a scarlet, and one a pink. It rarely happens that these tints can be met with in flowers so as to accord with each other—the one would kill or neutralise the other; but place a white between them and the effect of both is improved, or, at least, not diminished. The heliotrope, and some verbenas with grey flowers like those of the heliotrope, are the next best after the white for the same purpose.

One more remark, and I have done. All that has been said about the effect of the contrasts and harmony of colours in a flower-garden, as far as I can understand, is on the assumption, that the real tints specified are at command — as a painter would show them by his colours,—without taking the various tints of the foliage and flowers into consideration at all; and if the reality was so indeed, the arrangement of flowers in a garden would be as simple as laying on the different colours with a painter's brush; but so far from such being the case, that I shall safely venture the assertion, that not one of those painters or masters whose arrangement of colours have been published, ever planted, or saw a flower-garden planted, after their models for two seasons in succession that would bloom, or could be kept in bloom, from the middle of May to the end of September. Nevertheless, their rules are still very useful to guard the inexperienced planter against committing glaring faults in the distribution of his colours. Next week I shall give a list of plants to suit such a garden and management; and I shall endeavour to make the whole as clear and useful as to suit many besides X. Y. Z.

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

LITTLE MATTERS.—There is an old adage which some of us are apt to forget—"take care of the pence, and the pounds will take care of themselves." The aphorism inculcates neither close-fisted parsimony nor mean stinginess, but prudent thrift, and untiring attention to what are generally styled, *little matters*. When, however, consequences are traced to their cause, the connection will be seen between the minute and the splendid on the one hand, and the disheartening and destructive on the other. Hence, many of our failures in gardening arise from thinking about the pounds, and neglecting the pence: scheming and expecting great results, but not attending to the minutiæ of means. I once attempted something great in the way of French-beans, which were wanted at Christmas. The seeds were sown in large pots, and in a compost of equal proportions of rather fresh turfy sods, chopped up, and decomposed hotbed dung. The position in which the plants were to be placed, and the small amount of sun-light they could be expected to obtain, if ever thought about, would have saved me mortification and trouble; and shown the importance in such circumstances of using small pots and light soil. *An amateur* attended to a little early peach-house as carefully as if Mr. Errington had been at his elbow; and well did the prospect repay him for his labours; but a keen frosty night succeeds a period of dull warm weather, and, that all may be right, he attends to the heating himself. Next morning, with a clear sky and a north-easter enough to nip his nose off, he gallantly pokes up his fire again, as the frost is more intense than ever; forgetting, or afraid, to give much air. The heat from the fire and the heat and light from the sun uniting, are too much of a sudden stimulus, and almost every young fruit drops in consequence. Less artificial heat, and a little shading in such circumstances, would have saved the crop. *Another* has found that manure-water is a capital thing for vegetables and free-growing greenhouse plants, and therefore he must needs apply it to all, be they hair-rooted, tender, or sickly, with as much consistency as the physician would recommend similar food and treatment, to the rollicking huntsman and the bed-room invalid. *This* gentleman has carefully attended to some beautiful plants in a small window conservatory; but *one night* he forgets all about them, and before the morning Mr. Frost has taken them as his victims. *That other* friend has heard about the good effected by the fumes of sulphur when rubbed upon a hot-water pipe, in causing red spiders and other insects to *flit*—if it long allows them the alternative of remaining, or removing—and reasoning with himself, that if these mild fumes are so far effectual, surely stronger fumes from a higher temperature would be still more so: he at once ignites the sulphur in his greenhouse, and destroys, if not all the insects, at least the greater part of every thing green! The trying such a plan upon a single plant, was too *little* a matter for him. Even the burning of sulphur may *sometimes* be done with great advantage, but I am, as yet, afraid to allude to it: the *how* and the *when* is so *simple*, that our friends would be sure to be tacking on what they believed to be improvements, and then visiting disasters upon my devoted head. Again, here is one friend that for several months in the year is quite an enthusiast: desirables and novelties are procured with open-handed profusion, and the resolution formed, that this year they shall constitute the nucleus for a future splendid stock; but, somehow, when spring again returns, there is much the same desolate appearance as before, and the necessity for a fresh supply as urgent, and just because that after the first flush of excitement was over, *watering* was so attended to—a dribbling at one time, a flooding of pot and saucer at another, and a regular dry-baking between—that for the plants to have succeeded, they must have possessed the combined constitutional qualities of the hardiest rock-clinging succulent and the marshy aquatic. Once more, there is another friend who is a great admirer of simplicity, who tells you that nothing is grand that is not simple in its elements, manages to grow calceolarias, geraniums, &c., well in the open air in summer, planted out in the common soil of his garden, yet wonders he cannot grow the same things from similar soil in pots, at an early part of the season; though he confesses that his love of simplicity does not lead him to attend to drying, and turning, and mixing, and draining,—those little matters about which his more successful neighbour, *Mr. Attentive-to-trifles*, is always so careful, that but for his productions he would chaffer him as inheriting the mantle of the old florists, who could do nothing without a dozen or a score of ingredients.

These are a few types of numerous groups who, like *myself*, frequently suffer from inattention to *little* matters. We think that the *practical* inference will at once be obvious. Many things, however, which appear simple matter of routine to the experienced, are sufficiently abstruse to the beginner; while many, with limited space and means, are not so much bewildered as tantalized by our description of soil, &c.: understanding it all well enough, yet experiencing something like a night-mare oppression of the *uncome-at-able*. To meet their case, we will sometimes show how little matters may be made still more simple; and, first, with respect to

Soil.—For all hair-rooted plants, such as the heath and epacris, sandy-heath soil is indispensable. This is to be distinguished from what is generally termed peat or bog earth. The latter is decomposed vegetable matter, covered, at least periodically, with water. The former, *heath soil*, is decomposed vegetable matter, mingled with soil and the debris of rock, formed on high ground where the hardy heath naturally flourishes. In no case of pot cultivation can the *bog earth* be substituted for the heath, as it requires a long exposure to air to free it from the acrid qualities produced by its being covered with water. This heath soil, even when deep, should not be taken off at a greater depth than four or six inches, as below that depth, though useful for general purposes, it is too much decomposed to use for pot specimens. Keen cultivators will send twenty, or even a hundred miles for the best samples, such as that at Wimbledon Common; others, less ambitious and able, must be content to obtain it at the locality nearest to themselves. No amalgamation of common loamy soil can be made to take its place for these hair-rooted plants. A little of it is of great importance for mixing with loam, in potting many other plants. For all plants, however, with largish roots, not naturally growing in such soil, it may be dispensed with, where the cultivator cannot easily obtain it, and where a little extra care will not be grumbled at. When, therefore, we mention heath, or as it is frequently termed, peat, as one ingredient in a compost, recollect, first, the nature of the soil specified; and, secondly, that, unless in the cases referred to, its use in compost is as much *mechanical* as *nutritive*. You can supply its place, when using the soil of the neighbourhood, or even of your garden, by inserting pieces of dry, very fibry turf, pieces of charcoal, and, more sparingly, lumps of dried cow-dung, so dry and hard that the roots will cling around them, parting slowly with their nourishment—months being required before they become soft.

For the plants, however, generally cultivated in windows and small greenhouses, the soil of the garden, with that obtained from the side of a frequented highway, will be amply sufficient. The latter, generally consisting of a mixture of soil and pounded stones, mingled with dropped manure and tree-leaves, makes capital stuff after it has lain a year or two to consolidate and sweeten. The mounds thus formed soon become covered with grass; and when then taken off in sods and built up in a narrow rick, open thus to air but protected from wet, when cut down in a twelvemonth, it will be such as an epicure in potting would delight in using. For such a purpose, if fibry, turfy pieces are your object, such as, when thus decomposed, you can scarcely tear asunder, choose your turf from a position where the surrounding soil is of a loamy nature, and where grass grows; not soft and broad-leaved, but narrow, hard, and pointed like a needle. For present use, the sods must be discarded, and the finer soil will do well for small pots; recollecting, however, that, with the addition of the pounded stones, it will always partake of the nature of the surrounding ground. If this is strong loam, a little sand and charcoal may require to be added; and *vice versa*.

Some time ago I was invited to pass an opinion upon a huge box of soil, that had been sent to ladies who were very fond of pot gardening. It was miserable *effete* stuff, sifted so fine that you might have strained your eyes to find a piece the size of a pea. At the back of the house a piece of ground had been trenched early in winter, and laid up in ridges for summer crops. In a twinkling, delicate hands had collected a couple of bushels of fine, dry, hazelly, flaky soil from the tops and sides of the ridges. It might be called clayey loam, rather than sandy; a little road-drift would make it all right, but even that was not required, for in a corner was found a little heap of the parings of the grass-plat the previous spring, and sweepings of the walk during the summer. This mixed with the soil, with good drainage, putting a little chopped fresh straw to separate the soil from the pebbles below, produced such pleasing results, that the annual importation of soil was never more repeated. R. Fish.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

Sobralia Macrantha.—This is a splendid plant of great beauty, with extraordinary large flowers; some of them measuring as much as seven inches across. They have something the appearance of an overgrown Cattleya. The colour of the flower is of the richest purple crimson; the labellum has the throat shaded off to white. The flowers are produced upon tall reedy-like stems, out of a drooping spathe, one at a time. Each flower lasts about three days. As soon as it shows symptoms of decay it ought to be removed, to make room for the succeeding budding flower to come forth and expand its beauty. On strong stems as many as five flowers, or even more, will make their appearance in succession—thus keeping the plant in beauty for a fortnight or longer. There are some three or four more species of similar habits, but smaller flowers and of shorter duration, seldom lasting more than a single day. We cannot recommend them to any cultivator, but the *S. macrantha* is a plant that any one possessing a stove, let alone an orchid-house, ought to grow. We trust our friends that are lovers of orchids, and have not yet obtained a plant, will try to get one. They are not so expensive as many of these rare singular plants are. A nice plant may be purchased for 10s. 6d, and a strong blooming one for 21s. The peculiar treatment they require we shall now proceed to describe.

Heat—We mentioned above, that this fine plant will grow in a cool stove. Being a native of Guatemala, where the temperature seldom exceeds 75°, it does not require so much heat as several even from Mexico. We grow it constantly in the stove, and certainly find it to do better than in any other house. Air is given to this stove, whenever the thermometer indicates 60°; and in winter it often falls as low as 40°.

Soil.—The compost which we use consists of turfy loam three parts, turfy peat one part, leaf mould one part, and a small portion of river sand, all well incorporated together at the time of potting. Sobralias have long strong roots, very like those of asparagus; hence they require comparatively large pots, especially specimens of tolerable size. We have seen a large plant six feet high, and as many across, growing in a large tub. This plant is in a collection we have mentioned more than once, belonging to R. S. Holford, Esq., of Weston Birt; Mr. Bassett, the gardener, has grown this plant to the highest perfection. It was a perfect picture of industrial skill. Mr. B. said it had frequently had on it at once as many as fifty of its magnificent flowers in perfect beauty.

Water.—This plant is found in marshy ground in its native locality, growing on little raised hillocks. During the rainy season they have abundance of moisture; then the plants grow and flower; the dry season returns, the surface of the marsh dries, and the plants cease growing and have a kind of rest. Exactly the same culture must be followed in this country in our stoves, with regard to moisture; they will bear great extremes of it. In the spring, commencing with the month of March, and up to the end of August, they require abundance of water; after that time till the middle of November it must be given in small quantities; and from thence till the spring-time returns, no water at all; and here is the difference between the culture of this plant and that of *Bromheadia palustris*—the latter requiring water and heat all the year. See the account of it at page 279 of this volume.

Some cultivators place pans under their pots of Sobralias, but we do not approve of this, even in the hottest months of summer. We give abundance of water, but allow it to run off through the drainage. The roots in summer are growing freely, are soft at the extremity, and liable to perish, if soddened in water. Sobralias are not water-plants, but marsh-plants; and, therefore do not actually require a lake to grow in, but are well content with a good slushing of the watery element when they are producing their strong shoots and noble flowers. They will bear this every day at that season, but when the heat declines be wary of applying water, or you will lose your summer-made roots.

Propagation.—The way these plants are increased in number is by division, and the time to do this is in early spring, before the new shoots and roots begin to grow. To be successful in this operation a considerable sacrifice must be made—a whole plant must be devoted to the purpose. Take the plant to be divided, and turn it out of the pot carefully; then shake it gently, and all the soil will easily drop off from the roots. Place the plant upon a bench or table, and insert a knife between the stems, cutting the hard woody rhizoma (root-branch) in two; then, with the hand, pull that division away from the main plant. Do this carefully, but firmly; it will require a considerable amount of vigour to part them. Having got one off, insert the knife again into another division, and pull it off too. Proceed in this way to make as many divisions as the plant will afford, and then pot them into rather small pots, in fact as small as the roots can be conveniently got into, using the same compost as for the established plants, and giving plenty of drainage. Place these divisions in a corner of the stove, where you can give rather more shading; or, if you have that convenience, plunge them in a moderately-warm bark-pit, shading them there till they begin to make fresh roots and new growth, and are able to bear more light, air, and less heat. In this transition-state they will require very careful attention in the application of water; too much, or too little, being equally injurious. It is impossible to give the exact amount of water they require in this delicate state. We would advise the propagator to rather underdo it than give too much. In general, a rule may be followed of never giving water till the surface appears dry, and the plants rather droop in their foliage; then give them a moderate supply. Avoid syringing till the divisions are fairly established.

Some may not require so many plants as we may suppose a tolerably large one would make, when divided as we have described above, but are still desirous of having a duplicate plant. In such a case we should say, take off only one division, but do not be niggardly about it. Take off a piece large enough to be sure to grow. Four stems is the lowest number to be sure to make a plant.

We have rather dwelt upon this plant, perhaps some of our readers may think too long, but it is really such a fine species, a free grower, free flowerer, and easily managed, if rightly operated upon, that we think we have not written one word too much upon the points of culture it requires. Upon these points we are quite positive and certain. If our readers follow them exactly, they will be sure to grow *Sobralia macrantha* to great perfection, and make their small plants large ones in a very short time.

FLORISTS' FLOWERS.

AURICULAS AND POLYANTHUSES.—If our instructions have been attended to, these beautiful spring flowers will now be looking fresh and healthy, putting forth their young leaves with vigour, and, as it were, looking happy and grateful for the care and attention bestowed upon them. As they are now in a critical time to bring their flowers to perfection, the utmost attention must be paid to keep them safe from draught and cold cutting winds, which, at this time of the year, very often prevail to a great degree.

In answer to a correspondent, we subjoin a list of 12 of the best polyanthuses, and 12 good ones of an older date, and cheaper.

FIRST SET.

Addis's Kingfisher, 10s. 6d. [This is a new variety, of most excellent qualities.]
Clegg's Lord John Russell, 2s. 6d.
Collier's Princess Royal, 2s. 6d.
Crawshaw's Invincible, 3s 6d
Craiggy's Highland Mary, 2s. 6d.
Chadwick's Elegant, new, 5s
Errington's Fire King, 3s. 6d.
Gibbon's Royal Sovereign, 2s. 6d.
Hufton's Earl Lincoln, 5s.
Maund's Beauty of England, 2s. 6d.
Nicholson's Bang Europe, 3s. 6d.
Urquhart's Princess Royal, 7s. 6d.

SECOND SET.

Buck's George IV., 1s.
Barnard's Formosa, 1s. 6d. [This is an excellent variety to breed from.]
Bullock's Lancer, 1s. 6d.
Cox's Prince Regent, 1s.
Fletcher Defiance, 1s. 6d.
Hufton's Lord Rancliff, 1s.
Hudson's Negro Boy, 1s. 6d.
Moore's Freedom, 1s. 6d.
Nicholson's King, 1s.
Pearson's Alexander, 1s. 6d. [Also a good breeder.]
Toone's Black Diamond, 1s.
Wild's Black and Gold, 1s.

CARNATIONS AND PICOTEES.—*The Wireworm* is a great enemy to these flowers, and must be diligently sought for and put to death, or it will soon kill, perhaps, your finest varieties. It is an insidious foe, creeping in the earth like a mole, working its way to the stems out of sight, boring into them just under the surface, and living upon the pith and marrow of its prey. The plant for a time appears healthy, but suddenly droops in its freshness and dies. If it be then examined, there will be found nothing left but the outer skin or bark, the leaves, and, may be, the enemy himself devouring his last meal. It is commonly said, prevention is better than cure, in this case, however, there is no cure. To save these lovely fragrant plants from this concealed enemy, they must be prevented coming near them. Unfortunately, they abound most in the loam the carnation thrives best in. This loam must then be diligently examined, morsel by morsel, and every one of these destructive pests destroyed; and, as a further precaution, traps must be laid for them. Insert into the soil, whether the plants are grown in pots, or in the open border, as near the plants as possible without injuring the roots, some slices of potatoes, with the eyes cut out, or slices of swede turnip will do. . Examine these traps every three or four days; pick out the wireworms if there are any, and set the traps again. By these means, well and diligently applied, the plants may be preserved. As this is the time for potting into blooming pots, it is a good opportunity to examine the soil previously to using it; and if only one is found, it will be wise to set traps at the same time.

DAHLIAS.—Those roots that have been put into a gentle heat for the purpose of propagation will now be pushing forth young shoots. These shoots, as soon as they are three inches long, should be cut off near to the bulbs or tubers, but not quite close. A couple of eyes should be left to start again. If it is desired to increase the stock greatly, either for sale or for exchanging, the cuttings may be put in rather thickly round the edges of the cutting pots. The best material to strike them in is fine pure white sand, with a little soil at the bottom of each pot. The best place to strike them is upon a gentle hotbed, under a frame. Just give them a gentle watering at the first to settle the sand and shade them from the sun. They will soon put out roots. T. APPLEBY.

THE KITCHEN-GARDEN.

ASPARAGUS.—Persevere in maintaining a well-pulverized surface, so that no obstruction that can cause deformity may occur to the young growing shoots. Salt, in small portions, may be applied to advantage, in showery weather, as the growing season advances. The best time for applying it is in showery growing weather, through the midst of the cutting season; and when that is over continue the application of the salt, in order to encourage a luxuriance for the ensuing season.

ANGELICA.—This being an early growing plant should now meet with encouragement. With careful regard to surface stirring, and applications of liquid-manure, a few plants may thus be made to produce an abundance of its fine clear-coloured stalks. The blossom stalks should in due season be picked out, so as to give all possible encouragement to the leaf stalks, which are the most esteemed for preserving. The present is also a good season to sow Angelica seed for securing strong plants for the next season's produce; this should be done in drills four feet apart.

ARTICHOKES.—Give these their final thinning, unless it is requisite to have suckers enough for another successional planting, which is the best way to secure artichokes fit for table until late in the autumn. Liberal applications of liquid-manure will greatly encourage their luxuriance, as well as an abundant successional produce.

CARDOONS.—For this esteemed winter vegetable a good preparation should be made. The space where some of the brocoli have been cleared away, or any other spare ground, should at this season be well manured and ridge-trenched, so as to get it well sweetened and in a pulverized state by the sowing-time; which with us, to obtain a winter supply, is from the middle of April until the end of May, about two or three sowings. If an early autumn supply is required, a sowing may be made at the end of this month, or the beginning of April. A good deep drill should be drawn, or a shallow trench formed similar to an old-fashioned celery trench, and the seeds dropped in three or four inches apart, thinning the plants as they grow, until at their final shifting the distance from each other is as much as 15 or 18 inches.

CELERY.—Full sowings of celery may now be made. A small portion only of the early sown plants are worthy of pricking out on a slight hotbed, to be encouraged to luxuriant growth by liberal applications of tepid liquid-manure.

CABBAGES AND EARLY CAULIFLOWERS.—The latter should at this season meet with good attention, as previously directed. Sow now, in succession, a good variety or two of cabbage, for planting in succession throughout the summer months, on spare ground as it comes to hand, so as to have a fresh supply of young cabbages and colewort greens. Sow the *Purple Cape* and *Hammond's white Cape broccolis, Borecole, Buda kale, Savoys,* and *Drum-head cabbages,* that plants may always be at hand to crop at once every piece of ground that becomes vacant.

RADISHES.—Sow in succession at this and the coming season, away from warm borders, that they may be produced crisp and tender, without being disagreeable in their flavour, which is sometimes the case late in the season, when sown in warm situations, and exposed to heat and drought.

FRAME POTATOES.—Water should not be applied too liberally: indeed, the less the better; and when the haulm or stalks have grown to about their natural height, no more water should be applied. Thin all those now coming up under slight protection, &c., to one single strong shoot. This takes but little time, and the reward in the produce, of having all good even-sized tubers instead of a quantity of small ones, will well reward the little trouble taken.

CUCUMBERS AND MELONS.—Keep the early cucumbers freely growing by frequent applications of tepid weak liquid manure-water; stop or pinch out the point of every shoot a joint above the fruit: keep the vine thin, and the fruit laid in a position so that it may grow straight. There are many contrivances for this purpose: any one may obtain laths, say a three-feet lath, cut in three pieces, tacking, with a thin twopenny clout-nail, one piece on each side of the other—forming, as it were, a trough with two sides and a bottom. Double-laths of a pretty good width are, of course, the best; and many may be made in this simple way in an hour or two. Keep up a liberal heat also about the melon; and sow of each in succession.

BROAD-BEANS.—Plant in succession some of the best long-pod kinds, unless any other particular kinds are preferred. *Johnson's wonderful* is the best and most productive sort that we know.

PEAS.—Continue to sow in succession; the present is a good time for sowing any of the *Tall Knight's marrowfats.* Attend to earth-stirring amongst those already up, and let this be done frequently. Keep a keen eye upon the birds and slugs, and draw up plenty of earth along both sides of each row of peas, so as to form a trench previous to sticking, in case water should be required by and by; and let all be sticked that are forward enough, without delay.

CARROTS AND RADISHES.—Thin out well with the finger and thumb, and keep the earth stirred well among them. A little trouble will be well rewarded amongst these pet crops.

ROUTINE WORK.—Divide and plant out *thyme, marjoram, sage, tarragon, chamomile, penny-royal, mint,* and *sorrel.*

Sow *Parsley* seed, and sow also *small salading* in succession.

Sea-kale seed should also be sown on good well-prepared soil. JAMES BARNES & W.

MISCELLANEOUS INFORMATION.

MUSHROOMS.

If you think the following worthy of a place in your useful publication, you are at liberty to insert it, and to make use of the real names and addresses after-mentioned.

Last February, Mr. Joshua Starkey, a respectable farmer, living at Agden, near this place, sowed on his grass and pasture lands a ton weight of common salt. To his surprise, last autumn, a large crop of excellent mushrooms made their appearance; indeed, he sold at the Manchester market upwards of £6 worth during the season—besides, as he thinks, giving to his neighbours half as many more. What makes the above more remarkable is, that he sowed one old pasture completely over with the salt, as well as several portions of other fields, which had recently been laid down for grass. The old pasture produced a most enormous crop of mushrooms, and the parts of fields which he sowed produced more or less; whilst upon the other parts of the same fields, upon which no salt had been sown, not a mushroom was to be found. A farmer of the name of Stannier, residing in the same neighbourhood, a year or two ago, also mixed a quantity of salt with some compost (ditch scourings, &c.,) and laid it, during the winter months, on one of his fields; he also gathered a large crop of mushrooms upon it—indeed, he states that he actually mowed them with a scythe off the land; and that he sold, in one week, 12 hampers of them, at £1 each. It seems to be a fact, well known at the salt works at Northwich, in this county, that salt is an article capable of producing mushrooms, when applied to grass lands; for, when Mr. Starkey's servant fetched from that place the salt which he used, he was told he might expect a crop of mushrooms. As the above communication may be of use to those of your readers who wish to produce mushrooms on their grass lands, I beg to leave it in your hands, to make such use of it as you think proper.—JAMES BROWNELL, *Solicitor, Lymon, near Warrington, Cheshire.*

[The statements in this letter are so contrary to the results we should have anticipated, that we should have inserted it doubtingly, if not verified, as it is, by real names and addresses. We know that salt, applied in a large quantity to a gathered mushroom, is the cause of its total destruction; and that, in ketsup, sprinkling over them salt is all that is required to reduce them to a black liquid mass. We shall be glad to hear from any one who has had any experience relative to this subject. It would be worth while to sprinkle a little over *part* of the surface of a mushroom-bed, to test its effect there.—ED. C. G.]

EXTRACTS FROM CORRESPONDENCE.

Shalot Culture.—I would call the attention of every reader of The Cottage Gardener to the very excellent results I obtained from manuring with charred refuse for shalots, in accordance with your valuable advice. During March last, I marked out a bed 6 yards long, by 4 feet wide; drew four moderately-deep drills: filled two with charred refuse, and two with a compost of salt, lime, and walk-sweepings; and planted the rows thereon, 10 inches apart. Their subsequent treatment, as to hoeing and weeding, was precisely the same. They were taken up in July, each two rows were kept carefully apart, and when fully dried were weighed. The produce of the two rows grown on the charred refuse was 9½ lb; and that of the two grown on the compost only 4¼ lb.—Leighton.

Rose Pruning.—In the January number of The Cottage Gardener, Mr. Beaton anticipated one of the topics on which I wished to consult you: I mean the propriety of pruning roses in October. And as I practised in November the directions with which he favoured us in January, I conclude that I acted right. Permit me briefly to relate the reasons on which my practice was founded.

Every thoughtful person must be impressed with the wonderful analogy that exists between certain animals and plants. And taking the dormouse as my type—that sensible little animal, who, on the approach of winter, puts himself comfortably to bed, and never quits his hibernaculum until spring knocks at his door. But before the dormouse retires to his rest, he provides a store of food in case an access of mild weather should disturb his slumbers. An interval of mild weather *does* occur, and the little creature awaking from sleep, partakes of the food he had stored up; and on the return of frost he relapses into sleep. We perceive, then, that during the abode of the dormouse in his winter quarters the vital functions are still in some degree active; not so vigorously indeed as when he is frisking in the sunshine. But we see him sleeping when it is cold, reviving whenever the weather is mild, and again falling asleep on the return of cold weather. Now is not this the exact condition of a plant during the winter? On the arrival of winter, the plant goes to repose; but it has previously laid up a store of food for its future exigencies; the weather becomes milder, and the plant shows some increase of its living principle by the swelling of its buds; there is a return of cold weather, and the circulation becomes more sluggish. Thus, in the animal and the plant, the vital action, although at times impeded, is never entirely suspended; and with these partial revivals and checks, they both struggle through their wintry existence. However, this is the train of reasoning which convinced me that trees ought to be pruned as soon as they are out of leaf, to attain the purposes so ably stated by you last month. I append a little historiette of my practice. I purchased a few rose-trees in the autumn, but they did not come to my possession before the middle of November; and being confident of my theory, I pruned them at once to the shape in which I hope to find them in the spring. I had indeed some ugly visions of *snags*, and some apprehension that after I had performed my amputations, Mr. Frost would follow in my wake, and effect *his* mutilations, and then, thought I, what will be the condition of my poor trees after these two-fold operations? To prevent the occurrence of *snags*, I touched the cut part of the branches with liquid India rubber, which formed a hard polished coating, impervious to cold and wet; and I am glad to say that my trees have passed unscathed through the sharp ordeal of the late frosts. (This is a good suggestion.) May I be permitted to inquire, when your trees were pruned in October, whether you used any precautions to insure them from the injurious effects of frost and damp? (None whatever.) Did you ever remark, or did you ever hear it mooted, that the temperature being the same, the buds of trees swell more in windy weather than in calm? I *fancy* that it is so; and if there be any truth in the remark, perhaps it may be accounted for by the agitation of the branches, which occasions a more brisk circulation of the sap. And in this view, the March winds (among other purposes) may be intended to arouse the vegetable world from its winter's slumber. But I write this hesitatingly.—T. O.

[This is quite possible, and is in conformity with a theory first suggested by Mr. Knight. He found that of two plants exactly alike, kept in a greenhouse, one quite still and the other frequently shaken, the latter grew fastest and strongest. It is a common observation with farmers, that turnips do not grow fast until the leaves are large enough for "the wind to get hold of them."—Ed. C. G.]

A DESCRIPTIVE LIST OF CAMELLIAS.

(*Continued from page* 327.)

STRIPED, SPOTTED, AND BLOTTED.

Adonidea. — Pæony-shaped; sometimes imbricated; petals rose, spotted with straw, veined with lilac, and regularly bordered with white, 2s. 6d.

Americana.—Same form as the *C. Duchesse d' Orleans;* delicate rose, striped or stained with crimson, 2s. 6d.

Archduchesse Augusta.—A splendid variety—all beauty. Form exquisite; colour new; richly imbricated; petals of a fine deep red, veined with *blue*, with a white stripe down the centre of each. As the flower fades, it changes to all blue, flamed with red, and bordered with white, 10s. 6d.

Baltimoreana.—Very grand; delicate white; striped with rose.

Barni d' Italie.—Deep red, with a narrow stripe of white down the centre of each petal; an imbricated flower, 2s. 6d.

Benneyii. — Imbricated crimson, finely striped with white: magnificent.

Bijou de la Garza.—Form of the Duchess d'Orleans; ground colour deep carmine largely spotted with white, often edged with a ribbon of white; a truly splendid variety, 10s. 6d.

Camellia de la Reine.—Finely imbricated; a grand flower; large petals, very round; ground colour pure white, slightly spotted with lilac, 3s. 6d.

* *Brozzoni.*—Form of the Duchess d'Orleans; the three outer ranges of petals cherry colour, all the other white; a most extraordinary flower, 10s. 6d.

Caroline Smith.—Well imbricated; lively rose, with a white stripe down the centre of each petal, 2s. 6d.

Carswelliana.—Excellent shape, form of Alba plena; rose slightly tinged with salmon, one white stripe from the centre to the outer edge of each petal, 2s 6d.

Colletii.—Bloody velvet ground, coloured with large blotches of the most pure white.

Daniel Webster.—Carmine lined with white; some petals almost all white, others largely striped; imbrication perfect, and the petals very round, 2s. 6d.

Donkelaarii.—Clear red, with large blotches of pure white; flowers large; a beautiful variety, 2s. 6d.

Duc de Bretagne.—Beautifully imbricated; colour a lively rose, striped and spotted with white.

Duchess d'Orleans.—Worthy of the name it bears; ranunculus-formed petals, very round; well imbricated; colour white ground, with a slight tint of flesh colour, irregularly striped and spotted with carmine; a first-rate variety.

Emilie Gavazzi.—Extremely delicate form and colours; well imbricated; rosy-white blotches, striped with carmine, centre yellow.

Emperor.—Raised by Davies & Co., near Liverpool, by impregnating C. Colvillii with C. reticulata; form and colour greatly improved upon both. It obtained a prize at the London Horticultural Society's Meeting, in Regent Street, 3s. 6d.

Eastii.—Very grandly imbricated; of the finest possible form; white ground, blotched, and striped with rose.

Fulgens plenissima.—Imbricated; lively rose, with a line of white down the centre of each petal, 2s. 6d.

Grand Duchess d' Etruria.—Pœony-shaped; ground white, finely striped with rose; a good variety, 2s. 6d.

Guillaume Tell.—Imbricated perfectly; three of the outer ranges of petals of a deep lively rose, the rest to the centre of a pale delicate rose; each petal large, edged with white; a first-rate flower, 5s.

Jubilee.—Well imbricated; white, slightly tinged flesh-colour, veined and striped with rose, centre a clear fine yellow, 5s.

Jupiter.—Imbricated; of a red colour, mixed with a clear salmon, and a ribbon of white regularly down the centre of each petal, 3s. 6d.

Lady Hill.—Globular form; delicate dark red, shaded with white, powdered over and speckled with carmine; very fine, 2s. 6d.

Landrethii.—Size and form of C. imbricatii; rose shading, with white towards the centre; first-rate, 2s. 6d.

Leopoldina d' Italie.—Large fine flower; white ground, spotted with rose, and striped with red; always imbricated.

Madonna.—Imbricated; very large; pure white, bordered with carmine; superior to that fine variety, the Duchess d'Orleans, 5s.

Marchioness of Exeter.—Delicate rose, sometimes blotched with white; extra grand magnificent flower. Obtained the first prize at the large Quinquennial Exhibition at Ghent, 3s. 6d.

Margaret Gouillon.—Imbricated and pœony-formed; delicate rose, spotted and striped with lively red; superior to Sweetii, 2s. 6d.

Maria Luigia di Parma.—Very large petals, spread out; dark blood-red, with large pure white spots, often self-coloured, 2s. 6d.

Neoboracensis.—Very large and fine; dark scarlet, striped in the centre with white, 2s. 6d.

Palagi.—Pœony-form; rosy white, spotted and lined with white and purple, 5s.

Perigrina.—White, striped with carmine like a carnation; a very distinguished variety, 2s. 6d.

Perfecta (*Chalmers's*).—First prize at the Grand Exhibition at Philadelphia. Imbrication and size perfect; rose sometimes dark and sometimes delicate; petals round and thin, each covering gracefully; generally spotted with white. During the later period of blooming its flowers become white; the centre petals bloom sometimes quite white, whilst those of the circumference keep the lively colour of cherries, 3s. 6d.

Perfection (*Cunningham's*)—Imbricated; magnificent dark red; a white ribbon divides each petal in equal parts. This variety, when nearly done blooming, becomes all blue; first-rate, 2s. 6d.

Pirzio.—Imbrication admirable; producing white flowers, others red, or half-red half-white; others quite white, veined with carmine, 2s. 6d.

Prince Albert (*Chandler and Son's*).—Imbricated circumference; pœony-form in the centre; ground colour, bright rose, powdered, spotted, and flamed with carmine; an admirable variety, 2s. 6d.

Princess Adelaide de Carignan.—Very free flowerer; well imbricated; round petals; rosy white, powdered over with carmine; centre yellow, 3s. 6d.

Princess Baciocchi.—Superbly imbricated; the first four ranges of petals of a fine dark velvet-like carmine, the others deep scarlet, edged with white, 2s. 6d.

Pulcherrima striata.—Brilliant deep scarlet, marbled with large and small spots; charming, 2s. 6d.

Queen Victoria.—Priestley's magnificent variety, with very thick petals; fine red, with a white line down the centre of each.

Ridolfiana.—White ground, with broad ribbons of blood-colour; some petals of a delicate rose-colour hang elegantly off the bottom; all the others are regularly disposed; magnificent, 2s. 6d.

Saccoi nova.—Imbricated variable petals; rosy, sometimes transparent, sometimes semi-coloured; at other times well variegated; a beautiful variety, 3s. 6d.

Spectabilis.—Magnificent globular flowers; very full; white, spotted with rose, 2s, 6d.

Teutonia.—Beats the old double white by the admirable disposition of its large petals. What renders it especially desirable is, its double inclination to produce flowers, either quite white or quite red, sometimes divided between the two colours, 3s. 6d.

Tourresiana.—Anemone-flowered, lively cherry-colour, with purple veins, 2s. 6d.

Verchaffeltiana.—Well imbricated; lively rose; the petals marked with a narrow whitish stripe on the edge; very fine, 3s. 6d.

Villageoise.—Elegant form; rosy white, well spotted with purple; very pretty, 2s. 6d.

Violace superba.—Fine foliage; large size; fine carmine, with violet shaving, 2s. 6d.

Visconta nova.—Imbricated; very full; dark carmine, spotted or streaked with white, 3s. 6d.

Woodsia alba.—Extremely large flower; petals of the circumference milk white, with large bands of carmine-coloured spots, and lines more mixed than in "Camellia King," 3s. 6d.

TO CORRESPONDENTS.

⁂ We request that no one will write to the departmental writers of The Cottage Gardener. It gives them unjustifiable trouble and expense; and we also request our coadjutors *under no circumstances* to reply to such private communications.

Indexes (*A. Z.*).—You can have these, together with prefaces and title-pages, by applying at our office, 2, Amen-corner. Send your direction there, inclosing four penny stamps, and they will be sent to you.

Gladioli (*Ibid*).—We will publish a descriptive list of these shortly.

Corrœa (*Mary Marshall*).—Whoever your friend is who told you that this is a hybrid between a fuchsia and a heath, knows nothing of botany. He might as well say that the Pyrus japonica is a hybrid between a crab and a poppy. The Corrœa is a distinct genus of plants.

Field Botany (*Rev. E. H. V.*).—Withering's "Arrangement of British Plants," or Smith's "English Flora," would supply your wishes. We cannot, in a weekly paper, be sufficiently accurate to justify our attempting to *accent* proper names.

Dictionary (*R. S. P.*).—A Dictionary, such as you suggest, is in contemplation; but it must be cheap.

Rabbit's Dung (*W. D. Paine*).—This is one of the richest of manures. It may be used instead of that of the sheep for making liquid-manure. It must, for such purpose, be kept dry, and unmixed with litter. As a manure for digging into the soil, it should be mixed with the litter and urine of the rabbit. Ammonia is abundant in the manure formed by rabbits; and, in addition, it contains much chalk (carbonate of lime), carbonate of potash, muriate of potash, and sulphates of potash and lime—all friendly to garden-plants.

Prices of Fowls (*A Constant Reader*).—If any of the parties who deal in them will send us an advertisement, we shall willingly insert it. We know it would answer their purpose, for our circulation exceeds that of any other gardening periodical.

Evergreen Climbers (*Hazelhurst*).—The best evergreen climber for the posts of a verandah are climbing roses of that character, such as Felicite Perpetuelle, Princesse Louise, Princesse Marie, and Odorata; and these are the best to bud other roses on. Gloire de Rosamene should be planted along with them to keep the bottoms full, and for perpetual flowering, but it will not bud well on any stock. The white jasmine, and the yellow one (Jasminum revolutum) are also very suitable for your purpose.

Amaryllis (*Delta*).—This planted in November and kept in the house, now looks sickly. You have done as thousands have done before, and as other thousands will continue to do, until The Cottage Gardener and similar works will diffuse a better knowledge among the many. The amaryllis and the rose were started in winter under too much stimulus; they answered the call by a sudden flush of growth, but nature was soon exhausted, and they both came to a stand still. The bulb must now have its own way; keep it moist for six weeks longer, and if it does not grow let the pot get quite dry and remain so till next August, or till the bulb begins to grow again. There are so many bulbs pass under the name *Amaryllis*, that no one can even guess the right treatment for a given plant without seeing it. Remove the sprig of the *monthly rose* into a very small pot, with sandy soil, and treat it as a cutting, and it will soon root at this season.

Tree Violets (*Cowes*).—These have "lost their character, having run all over the pots." All that you need do is to cut off all the side shoots close to the stems.

Begonia Fuchsioides (*Ibid*).—This has lost the ends of its branches, &c., from being kept in a cold damp greenhouse. Such a place is too cold and wet for this plant; but in a dry house it will do all winter, in a temperature of 40°, and from that to 45°. Cut down the side shoots to within one joint of the old stem, and those damaged cut to the bottom, but do not repot until the plant is in growth again—about a month hence. Sandy loam and good drainage, or a little peat or leaf mould, will suit it. Water it very sparingly for the first month after cutting it down.

Cryptomeria Japonica (*A Subscriber*).—This is quite hardy, and one of the finest evergreens you can plant. A rich, deep, sandy loam on a dry bottom is the best soil for it.

Bedding-out (*Hammersmith*).—You cannot safely plant out your verbenas, or any of the half-hardy flower-garden plants, at Hammersmith, before the 10th of May, and not even so early if the easterly winds, so prevalent at that season, should be very cold. Nothing but hyacinths, early tulips, with other spring bulbs and wallflowers will do for your new beds to look gay, as you wish, by the end of March. Any of the nurserymen in your neighbourhood could furnish a nice lot of flowering things till bedding-out time; and that is the cheapest way for a new garden.

Luculia Gratissima (*T. W.*).—This is a hardy conservatory plant, and keeping it in the stove as you did during the winter, is the ruin of it. The same treatment as is given to *forced* camellias suits it better than any other mode, when grown as a pot plant: that is, after flowering in winter, to allow it to remain at rest until the natural warmth of the spring season sets it growing, say early in March; then to force it into strong growth in a damp hothouse to the end of June, and to harden it off in July, so as to stand out of doors in August, or as long as the weather is fine. After the flower-buds are formed in October, it will stand a second forcing, which is the only point in which it differs from the camellia. We need hardly say this is the finest shrub in cultivation. Any good rich soil with a little sand and peat will suit it. *Crushed limestone* will not answer for potting, like silver sand.

Iron *versus* Wooden Greenhouses (*S. P., Rushmere*).—You are not probably aware, that if we answered your question either way, it would be like disturbing a hornet's nest. The question has caused heart-burning enough already. They each have their advantages and their disadvantages.

Perennials (*Ibid*).—We agree with you about them, and shall add some more to the lists already in our pages. But we never yet met three persons who would agree about a border of them, or even a good selection. There is no double *Erysimum perofskianum* that we are aware of.

Crocuses (*E. P.*).—These ought to be taken up every third or fourth year, say in August, and replanted immediately, for they are not improved by being kept out of the ground like hyacinths. Yet, as they do not succeed well with you, you might buy some next summer and plant them in October.

Propagating Aubrietia (*A.*).—The aubrietia is best increased by dividing the plants into five or six pieces, when they have done flowering, taking off some roots with each piece, cutting away half of the old stems, and planting them in light soil in some shady place, till September, or later, when they are ready for the beds again.

Annuals (*Ibid*).—These sown under hand-glasses need not be upon a hotbed; and as soon as they are up, raise one side of the glass to let in air to them.

Natural Phenomena (*Amicus*).—You surprise us by asking, why we insert such "trifling" information as that on such a day "the frog croaks?" information, you say, "trifling, even if true." Now, if not true, you will oblige us much by stating how far each event we so notice is from being correct, because on the multitude of such observations depends their value. We state what is the average time for each phenomenon occuring in the east of England; and when such phenomenon occurs either earlier or later, it is a natural indication to the gardener, if read aright, to sow and perform other operations earlier or later. Linnæus and other naturalists have commended these guides.

Cochin China Fowls (*Rev. W. D. F.*).—Norwood is in *Surrey*. We have forwarded your note.

Annuals (*P. O. P.*).—You will see some such as you require in our two last numbers, if you will consult the indexes. Very full lists, with heights, colours, &c., are given at pages 137 and 274 of our first volume.

Pea-fowl (*Mary Anne*).—Your pea-fowl losing the use of their limbs and dying, are affected probably with rheumatism and cramp. They are natives of a warm climate, and the late severe winter may have affected them. Cold and damp cause those diseases to them. Keep them shut up in a warm dry place; and when any one of them is attacked, put its legs and the lower part of its body in a bath of water as hot as you can bear your hand in it; put it before the fire until quite dry, and give it a pellet or two of barley meal containing a bruised clove of garlic. The wet clay soil is the cause of your *roses* losing the ends of their branches. Can you not alter the staple of the soil about them by excavating it, and mixing it with half its bulk of coal-ashes, sand, and lime rubbish?

Gardeners' Dictionary (*Ibid*).—A new edition is contemplated.

Seedsman (*C. Mc L.*).—Any one who advertises in our columns will send you what you want, and then you can send payment afterwards to him.

Bees (*E. R.*).—You had no hives in your own possession until this winter; and feel at a loss about transferring these swarms (which are in old hives) into the Improved Cottage hives. Your safest and best plan will be to let the bees swarm, and put the *swarms* into any kind of hives that you may like best; and when your bees have swarmed and *cast* (a second swarm), which they are sure to do, you must not expect any honey from them: it is all the parent stocks will do to lay up a winter's store. The small hive and glass have each a hole at the top; because, when placed between the one already nearly full and the parent hive, free communication may be given to the bees to go up and complete it. A turned piece of wood, with *one* hole two inches in diameter, will do equally well. Adapting boards are not absolutely necessary between the small hives, but they are very convenient at the time of removal; the large bowl forms sufficient cover for the whole. Keep your old hives for swarming. Should you feel particularly anxious to obtain a little fine honey from your old stocks, cut a hole in the top of the strong hives, and place on a small one that will hold five or six pounds, or a glass of the same size. It will retard their swarming only a few days, and perhaps not at all; put them on the last week in April.

Fuchsia Corymbiflora (*Ibid*).—Plant it in the border, and train it against your east wall, as you propose.

Twelvetrees' Washing Liquid (*A Subscriber*).—Not knowing its composition, we cannot say whether it will be beneficial as a manure after being used for washing linen. It is probably alkaline, and you can try it to cabbages in your kitchen-garden. Mr. Beaton does not recommend the disuse of the *hoe*, but of the *rake*. Every gardener who knows how to handle a hoe and spade can put a surface neat without raking it.

Bones (*Beta*).—If these do not dissolve readily, we conclude the sulphuric acid was not sufficiently strong. It ought to be the strongest sulphuric acid; try some more of this.

Potato Planting (*G. R.*).—*All* potatoes may be planted early—the earlier the better. The terms "early" and "late," applied to potatoes, refer to their time of being fit to take up. It is impossible to know what kind is meant by "a white kind from near Rouen."

Heating Greenhouse (*Hope*).—Your iron stove for this purpose will be best outside, with merely a cover from the weather; why not connect it with a brick flue? Iron always causes disagreeable smells, and the production of deleterious gases.

Canvas (*Dr. L., of Bath*).—You can get it from Mr. Hulme, Paradise Green, Knutsford. If the canvas touches the ground, it will soon decay.

Bees (*Un Abone*).—The floor-board may be cleaned or changed just before sunrise, or immediately it sets; *the greatest possible danger* would arise from setting pans with food about on a sunny day; it will set all the bees on your own as well as in your neighbour's apiaries to fighting, and the total loss of several stocks would in all probability be the result. The *contents* of a hive four years old, to be safe, should *now* weigh 8 lbs. Feed at the top of your hives, if possible; if not, see pages 305, 306, vol. i. of The Cottage Gardener.

Laying Down a Meadow (*A Subscriber, Dublin*).—After your turnips are off, dig the ground, and sow oats this month; and, as soon as these are drilled in, sow the grass seeds, and then run a light roller over. Describe your soil, and write to Messrs. Gibbs & Co., Piccadilly, London.

Names of Plants (*John Marchington*).—Your plant is *Arabis alpina*. (*J. W. Sulby*).—Your hardy shrub is *Garrya elliptica*. (*J. G. P., Everton*).—The small-leaved fern is the Maidenhair, *Adiantum capillus-veneris*; and the other, we think, is *Pteris pedata*.

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WEEKLY CALENDAR.

M D	W D	MARCH 28—APRIL 3, 1850.	Weather near London in 1849.			Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
28	Th	Maundy Thursday. Domestic Goose hatches.	T. 45°—38°.	S.E.	Fine.	47	24	7 a. 9	15	5 13	87
29	F	Good Friday. Large Bloody-nosed Beetle [appears.	T. 51°—29°.	E.	Rain.	45	25	8 23	16	4 54	88
30	S	Cowslip flowers.	T. 52°—29°.	S.W.	Rain.	42	27	9 33	17	4 36	89
31	Sun	Easter Sunday. Domestic Duck hatches.	T. 59°—31°.	S.	Rain.	40	29	10 39	18	4 17	90
1	M	Easter Monday. Ivy berries ripe.	T. 55°—40°.	S.W.	Rain.	V	VI	11 a.43	19	3 59	91
2	T	Easter Tuesday. Peach leaves open.	T. 56°—26°.	S.	Rain.	36	32	morn	20	3 41	92
3	W	Richard Bishop of Chich. Apricot leaves open.	T. 58°—26°.	S.W.	Fine.	33	34	0 41	21	3 23	93

Maundy Thursday is always the day next before Good Friday. The derivation of the name is obscure; but, besides that we mentioned last year, this one is not improbable. As this day is commemorating that on which our Saviour commanded his disciples to remember him as often as they supped together, and issued that "new commandment," "Love one another," this may well be designated *Mandate* Thursday - *dies mandatum*. The custom of relieving indigent persons on this day commenced in England during the reign of Edward III., A.D. 1363; and now the lord almoner or his deputy deliver to as many poor men and women as the sovereign has attained to years of age, woollen and linen cloth, shoes, stockings, five threepenny loaves, beef, dried salmon, cod, herrings, wooden cups of ale and wine, a sovereign, and as many silver pennies as the sovereign is years old.

Good Friday.—On the present occasion we shall do no more than make a few observations upon those "cross buns" of which Poor Robin says—

> "Good Friday comes this month—the old woman runs
> With one or two a-penny hot cross buns,
> Whose virtue is, if you believe what's said,
> They'll not grow mouldy like the common bread."

The custom of eating this "spiced dainty" was adopted, probably, by the early founders of Christianity, to supersede the idolatrous use of similar cakes at this season. Sacred cakes called *boun* were offered at the Arkite temples. "The offerings," says Bryant, "which people in ancient times used to present to the Gods were generally purchased at the entrance of the temple, especially every species of consecrated bread, which was denominated accordingly. One species of sacred bread was of great antiquity, and called *boun*." Diogenes Laertius describes the ingredients of these cakes as being flour mingled with honey. There is little doubt that the cross put upon our anniversary buns was the symbol adopted to denote the commemoration to which they were dedicated. The best recipe for making buns, that we know of, is the following:—Rub half-a-pound of butter thoroughly into three-pounds-and-a-half of flour; add half-a-pound of powdered loaf sugar, three eggs previously well beaten, a pint-and-three-quarters of new milk gently warmed, and four tablespoonsful of yeast. Mix the whole, let it rise well, by placing it before the fire, and then add either currants, or powdered carraway seeds, or grated lemon peel, according to the flavour desired. Bake in cheesecake tins, and the buns will be exceedingly light.

Meteorology of the Week.—During the last twenty-three years, the average highest and lowest temperatures of the above seven days, at Chiswick, have been 54.5° and 35.5°, respectively. The greatest heat during the same days occurred on the 3rd of April, 1848, when the thermometer reached 78°; and the greatest cold on the 1st in 1838, when it fell to 16°. There were, during the same period, 104 dry days, and 54 on which rain fell.

Natural Phenomena Indicative of Weather.—When *the moon* looks red or fiery, wind may be anticipated to be near at hand; if it looks pale, with ill-defined edges, rain is usually approaching; and when its face is clear, bright, and sharp-edged, continued fine weather is promised. The fourth day of the moon was that which the ancients especially regarded; and accordingly as she then wore one of the above appearances, they felt assured the rest of the month would be windy, rainy, or fine. Virgil says,

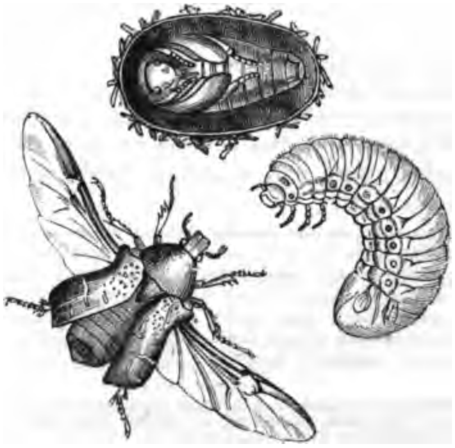
> "But if, unerring sign, the
> orb of night
> Clear wheel through heav'n
> her fourth increasing light
> Rain nor rude blast shall vex
> that hallow'd day,
> And thus the month shall
> glide serene away."

An opinion, Dr. Forster says, has prevailed for ages in Sussex, that a *Saturday's moon*—that is, a new moon occurring on Saturday—brings blowing and wet weather; and he observes, as a curious fact, that for twenty years he observed this to be the case.

RANGE OF BAROMETER—RAIN IN INCHES.

March		1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.
28	B.	29 914 29.697	29.710 29.704	29.822 29.722	30.395 30.269	29.813 29.672	29.577 29.505	29.604 29.483	29 813 29.731	29.399 29.250
	R.	—	—	—	—	0.01	0.07	0.32	0.21	—
29	B.	29.922 29.787	29.921 29.860	29.950 29.932	30.505 30.441	30.270 30.035	30.097 29.807	29.760 29.679	29.899 29 824	29.385 29.343
	R.	0.10	—	—	—	—	—	—	—	0.14
30	B.	29.915 29.836	29.914 29.836	29.818 29.602	30.373 30.283	30.273 29 907	30.116 29.858	29.712 29.621	29.831 29.760	29.433 29.280
	R.	0.03	0.05	0.01	—	0.02	—	0.01	0.02	0.16
31	B.	29.638 29.497	29.795 29.426	29.455 29.384	30.235 30.159	30.227 30.151	29.706 29.606	29.563 29.416	29 998 29.899	29.607 29.560
	R.	0.03	0.13	0.08	—	—	—	—	—	0.39
April 1	B.	29.684 29.596	29.457 29.303	29.500 29.484	30.223 30.170	30.237 30.194	29.591 29 445	29.404 29.300	30.024 30.002	29.524 29 418
	R.	0.05	0.02	0.18	—	—	0.03	0.05	—	0.12
2	B.	29.727 29.600	29.780 29.576	29.649 29.452]	30.130 29.970	30.086 30.061	29.284 29.122	29.333 29.247	29.984 29.881	29.437 29.410
	R.	—	0.02	0.05	—	—	0.06	—	—	0.10
3	B.	29.707 29.640	30.012 29.819	29.798 29.572	29.830 29.704	29.968 29.882	29.725 29.486	29.452 29.340	29.991 29.848	29 684 29.526
	R.	—	—	0.22	—	—	0.06	0.04	—	—

Insects.—In cutting, or rather splitting, some decayed logs of wood, a few days since, several of the larvæ or grubs of the Rose beetle were dislodged. This insect is the *Cetonia aurata* of some naturalists, and the *Scarabæus auratus* of others. The grub is of a dirty-white colour, and the tail end thicker and more highly glazed than the remainder of its body. It is usually found in decayed wood; but being occasionally discovered in the nest of the ant under ground, where it seems to feed upon the bits of wood of which the nest is composed, it thence has the popular name of "King of the Ants." After remaining about three years in the larva state, it makes a sort of cocoon of chips of wood glued together by an excretion of its own. In this it passes the winter, and in June following emerges in the perfect form. The Rose beetle flies well, with a considerable humming noise, during the hottest part of the day, passing from flower to flower—preferring, but not exclusively, our roses. It robs them of their honey; but, not content with this, devours occasionally their nectaries, and the lowermost juicy portion of the petals. Our drawing represents the larva, pupa, and beetle of their natural size. The beetle is of a shining-green colour above, and the wing-sheaths dotted with white. Beneath the body and head are coppery red. (*Carpenter's Zoology*, &c.)



IT is but right in this closing number of our third volume, that we should apprize our readers that the increased and increasing support we have received enables us to incur still greater expense for their benefit. By a judicious lengthening and widening of our columns, without altering the size of our pages, and by giving up occasionally two of the pages at present devoted to advertisements, we shall find space for several new departments intimately connected with our objects. Among these will be directions for the management of the Aviary, certain portions of Rural and Domestic Economy, and the Treatment of Domestic Animals. We shall be able to include these without diminishing a line from our gardening columns, and without adding to the price of our paper. So far shall we be from diminishing our amount of gardening information, that we shall add to it several new features, the most important of which, perhaps, is a series of drawings and essays, illustrative of the points of excellence which should characterise FLORISTS' FLOWERS, and the attainment of which points should be aimed at by their cultivators.

SINCE we wrote (see page 249) upon the subject of the *Orobanche* infesting the parsnip in the Isle of Jersey, we have received several communications upon the subject; and although they do not afford much relative information, yet they all add in some way or other to our stores of interesting knowledge. Dr. Macreight, writing from Jersey, says:—

> "I have just heard from Mr. Bichard, that the manure used for the parsnips and carrots was farm-yard manure, and the preceding crop was turnips. The carrots and parsnips were sowed in alternate rows, and the farmer attributes their both suffering to the high winds, which mixed the seeds; of course, carrying the seeds of Orobanche with it, if it did not exist in the ground previously.
>
> "We grow the *Veronica*, an evergreen shrub with broad leaves, I think *speciosa*, out of doors in Jersey, and it appears to withstand frost as well as a laurel."*

Of course, the farmer's idea that the seeds of the Orobanche were carried to his crop by the high wind needs no refutation. We have no hesitation in concluding, that the seeds were in the soil ever since clover was last grown upon the same soil; for it is quite certain that these seeds will remain in the earth without vegetating, until some plant adapted for their parasitical growth is presented to them. A fact somewhat bearing upon this phenomenon occurs in the following extract from a letter we lately received from Mr. Beaton:—

> "I can tell you one curious thing I observed of the *Orobanche minor* two years since. A new addition to the park here was made lately; the ground was put under a course of crop culture, to get it into a condition for permanent pasture; and, in due time, a crop of mixed grasses was sown from a London house, and along with the grass appeared thousands and thousands of the *O. minor*. All over a field of some twenty acres immense quantities of the seeds ripened; but none, either of them or of the old plants, appeared last season or the one before; at least, I could see none, although I walk to church every dry Sunday through this field."

Another correspondent (*L. S B.*) writes thus:—

> "While residing in Jersey, in 1844, I met with the *Orobanche cærulea* plentifully parasitical on a vetch. This was in the parish of St. Clement's, in a field joining the Witches Rock. Also the *Cuscata epithymum* (another parasite) in great plenty in the same field. I should, therefore, be of your opinion, that that upon the parsnip, &c., is not likely to be of English importation. Should your Jersey correspondent be interested in Jersey botany, he will find in the fields (next the sea), half-way between the field above named and Havre de Pas, that beautiful wild flower the *Centaurea isuardi*, or Star Thistle."

HIMALAYAH PUMPKIN SEED.—We have now a good supply of the seed of this most serviceable vegetable. Any one sending us an envelope, *ready directed*, and containing *two* postage stamps, any time *before the 15th of April*, shall have three seeds sent free of postage.

THE FRUIT-GARDEN.

CULTURE OF THE PASSIFLORAS FOR THE DESSERT.—There are two, at the least, of this most interesting family, the fruit of which is not only eatable, but, when properly ripened, possesses a very rich, though slightly acid pulp, particularly agreeable to some palates. We have cultivated one kind extensively, and we have always found that the fruit was highly esteemed by first-rate judges as a valuable adjunct to the dessert; its splendid rich plum-colour and neat form of themselves rendering it a desideratum on the first table. We here allude to the *Passiflora edulis*, or *incarnata*; the other kind to which we would draw some attention also is the *Passiflora quadrangularis*, although the former is to our mind superior in richness and pungency of flavour. They are both natives of the West Indies, whence the *quadrangularis* was introduced to this country about the year 1768; but the date of the introduction of *edulis* is not quite certain. They may, therefore, be considered stove plants in their true character; and they certainly delight in a high temperature, especially the *P. quadrangularis*; nevertheless, they can be grown in a comfortable vinery, and the *P. edulis* in a lower temperature than the other.

To those who wish to try their hand at either, we would say, commence with the *P. edulis*. The first thing to be considered is the situation. They are both plants of rambling habit, the *edulis* amazingly so; and its habit of growth may be compared to one of the wandering Ipomeas, or, indeed, to the common passion flower (*P. cærulea*) when thriving under fortunate circumstances, in a warm summer. Our practice was, when we cultivated it, to train it at the back of vineries which contained a tan-pit for pines. The houses had been newly built, and until the lines were thoroughly established, and occupied most of the roof, the passifloras of course had it all their own way; and the roof being metallic, the light was intense, and this it appeared in the sequel was the great secret of success; for as soon as the vines were permitted to cover the roof, we had to bid adieu to passiflora culture in that situation. Now, it being some seven feet from the back kerb of the tan-pit to the roof, we had to obtain a stem of that length, to enable the shoots which had to produce the fruit to come in contact with the roof, or rather the wires on which the vines and the passifloras were trained. The plant in its own native character is what our botanists term suffruticose—that is to say, half shrubby—and, like most plants of that character, can scarcely be brought to blossom the year in which it is sown, for they come readily from seed. We may here observe, that they strike readily from cuttings also; therefore, they are speedily multiplied. Our purpose in noticing these collateral matters is merely to show, that it is expedient that the plant destined to fill a given situation at a certain period should be raised and trained the year previous—indeed, if several years before so much the better; for with this, as with many plants of similar habits, the fruitful character increases with age. In our own case we had to rear a stem of six or seven feet; and our practice was to take cuttings or seedlings under high cultivation in the year preceding the fruiting year, and to train them just as our pot-vine growers train their vines, with the exception of "stopping," which is not necessary with the passifloras until they attain the desired length of stem, when the oftener in the first season they are stopped the better they will show blossom in the succeeding year. They are, however, readily raised from seed, and will grow much faster than from cuttings.

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* All the New Zealand Veronicas would live out of doors in Jersey, such as *V. salicifolia*, *Lindleyana*, and others. Your Veronica is the *speciosa* with the broad leaves.—ED. C. G.

We had an angle at each end of the tan-bed separated for them at the back or north side of the pit, and which angle would contain about a barrowful of compost, which was composed of equal parts strong loam, leaf soil, and sandy heath soil. In this they grew with the utmost freedom; indeed, they will grow freely in almost any dark soil.

The stems were carried perpendicularly until they met the vine trellis, when they were trained right and left over that portion of the trellis which covers the back walk. Each succeeding winter they were cut back to the point where the stem first reached the wires, and by the end of July the whole space would be covered again. In annually emptying the tan-pit, we invariably found abundance of roots running close to the pit-wall revelling in the decomposed tan; these were, of course, annually destroyed, and without any material injury to the trees.

Some attention is necessary in training them, or they get confused: about once a week they should be regulated; and when in the height of their growth whole shoots will have to be cut away, or "stopped," where becoming too crowded. Another point too, and an all important one, must have strict attention—the flowers must be "set" by hand as they open. Without this, the crop can by no means be relied on; with it, they are almost sure to swell off. The reason of this would seem to be that our ordinary summers' heat is not quite high enough, or rather, perhaps, that too much humidity exists in the atmosphere, even in the day, as compared with their native *habitat*. Added to this, the anthers or pollen masses, curiously enough, burst on the lower side, at least whilst growing in the before-named position; at the same time the stigma, or female organ, is thrown out in an elevated column above them. Our worthy coadjutor, Mr. Beaton, could doubtless throw some light on this curious economy, the design of which is not very apparent.

In "setting," we used to take one of the anthers, when burst, about eleven o'clock in the forenoon, and merely rub the point of the stigma with it: the male dust is profuse; but it, as before observed, never appears so subtile or volatile as the pollen of plants indigenous to our clime, as the yew, or the hazel. It appears about the consistence of Durham flour of mustard, and this leads us to think that our atmosphere is too humid to subtilize it. From Midsummer, or soon after, the roof will hang with scores of this delightful fruit, it being a free bearer; and until November they may be found in all stages—some ripe, others swelling, and fresh blossoms opening in all directions.

The fruit is about the size of a pullet's egg, finely formed, and of a splendid colour, about intermediate between a damson and claret-colour, and very rich and pungent. It seems to combine the flavours of the pine-apple, the black currant, and the elder-berry—a singular union; and the fruit, which possesses a thick, hard shell, is eaten with a spoon, like an egg; and we have heard first-rate gastronomists declare, that a little wine or brandy poured in, with some powdered loaf-sugar, was a capital addition for some palates. It certainly is the most splendid-looking dish imaginable on the table; but we warn all those who would cultivate it, that intense light is necessary, and that it will not answer to blend it on the same roof with vines—both crops would prove unsatisfactory.

The *Passiflora quadrangularis* is better known; of this we cannot speak so fully. It is a large fruit, as big as a small melon, and does not ramble so much in its growth; it has, however, a very large and shading foliage, and delights in heat and light.

R. Errington.

THE FLOWER-GARDEN.

Bedding Plants.—In order that all the plants available for planting in masses may be described in these notes, I shall, in future, arrange them according to their colours, and begin to-day with the white flowering ones; and as soon as I have enumerated all that I am acquainted with under each colour, I shall be obliged to any of our readers who will take the trouble to remind me of any omissions I may make, or send me the names of any new or old plants suitable for planting in beds, but which are not generally used that way, so that all the best flower-garden plants, known up to this season, may be recorded in a regular series, with short notices of their proper culture and winter management, also with such incidental observations on their merits for particular purposes as may suggest themselves. After getting through with those plants having the more prominent colours for massing, I shall mention those that I have seen used of late years for beds of different tints, or for mixed beds, and then wind up with a selection of the best border plants, or such as can only be used singly in patches; and it is in this class of ornamental plants that my own knowledge is most deficient; and, therefore, any contribution to this department will be very useful, and I shall feel grateful for any such aid. I hardly visit a garden, however small, without learning or seeing something which I did not know before; and there is no doubt but it would surprise many of us to see what an accession could be made to our stock of garden information, if the great body of our amateurs with small means were to throw in their mite to the common stock. At any rate, there are but few who have practised for a few years in their own gardens, who could not furnish some little assistance to my catalogue of ornamental plants.

White Flowers.—To begin with the lowest of the white bedding plants, I take the white variety of

Verbena pulchella (Fair Verbena); not much to boast of, it is true, but still it is useful for very small beds, or for a low band of edging. It is very easy to keep, being one of the hardiest of the new race *Lobelias*. At page 321, I have said that there are some white dwarf Lobelias belonging to the section called *erinus*. These are very neat plants for the smallest beds, and require the richest soil, are easily kept over the winter, and should be propagated in August by cuttings or seeds.

Campanula (or Bell-flower).—The most dwarf white campanula is one called *pumila*, and there is a blue one of this species. The height is no more than three inches, and is one of the neatest white edging plants I know, and as hardy as the "blue bells of Scotland." Like all the campanulas with creeping roots, it should be taken up every April and divided into little pieces, and these pieces should then be planted as closely together as they will lie; when used as a rock plant, it need not be divided oftener than every second year. *Campanula carpatica*—so called from being a native of the Carpathian mountains, and, therefore, must be a very hardy plant with us. Of this blue bell there is a variety with white flowers, as pure white as the snow on the Carpathian range. This is a gem of the first water for the flower-garden, either as a patch in a mixed border, or for a low bed or edging. The height is from nine inches to a foot. I was on the point of saying, that every one who has a flower-bed or border ought to procure this plant, but it is quite new, and may not be so readily met with as the blue one from which it sported. It does not seed freely, and will not come from cuttings after it begins to flower; but if put into heat in the spring, the cuttings will root as fast as those of the verbena, and will be ready to plant out in May, and will bloom beautifully for three or four months; after that, dividing the roots in April will be the proper mode of treatment as a bedder.

Senecio is the name of the American groundsel, of which there are two shades of purple, and a white variety. The white of this plant is not very clear, but it makes a variety, and lasts in good order from June to the middle of September, and, therefore, is not to be despised; besides, it comes from cuttings in the spring as freely as any plant. The height is 12 or 15 inches. The seeds of these American groundsels should not be offered for sale; a bushel of them would not furnish enough of double flowers to plant a yard of ground. There is an old Cape plant, with starry, white, little flowers, known in gardens by the name of *Buchnera viscosa*, which name, however, belongs to another plant. This also makes an addition to the low or small beds, though not very showy. It is about a foot high, very easy to grow from cuttings, and to keep over the winter, as it flowers on all the season, and is not bad to keep in the reserve beds. It is a useful plant to have at hand to fill a bed in July, after some annual or other plants are done flowering.

Geraniums.—The *White Ivy Leaf* is the best of all the geraniums for a low white flower-bed; the old *White Flowered Horse-shoe* geranium is too poor a trusser, and seeds too freely for a bedder, and my own light seedlings are not white enough to pass as such. *Queen Victoria* and *Lady Rivers* are too delicate to stand out in most places; but where the soil and situation is congenial for them, they form light groups of exquisite beauty, and there is a white variety of *Unique*, which promises to be a good addition to our light coloured beds, but I believe it is yet too scarce to be had in quantity.

Phlox.—The best of the white phloxes for a bed, is one called *omniflora*, which delights in dark rich soil; and being quite hardy is well deserving of general cultivation. It rises from a foot to eighteen inches, and should be taken up and divided every second season, or, if wanted to bloom late in the autumn, it should be replanted every spring, about the middle of April. All the Phloxes are good showy border plants, but they soon exhaust the soil unless they are taken up and planted every second or third spring. When strong plants of them are divided, all that is necessary is, to get up the whole ball with as many roots as possible, and then with a sharp spade to slice off pieces from the outside for replanting, and if needs be, two or three of these slices may be put in together, to form a large mass, and always in fresh soil, or in a different part of the border. The whole centre of the old ball ought to be discarded, but the usual method is to quarter the ball, which, as it retains the older roots, is bad practice. No matter what kind of old plant one has to divide, the younger parts ought to be chosen in preference to that which has often flowered; the youngest portion of the roots are always the most active, and will throw up the finest flowers.

Antirrhinum, or Snapdragon, furnishes two kinds for clear white beds; and both must be increased from cuttings only, as no reliance can be placed on seedlings coming genuine. A dwarf old white one, called *Double*, makes a nice low bed, and holds in bloom a long time if the spikes are cut off as fast as the seed vessels appear, which, like the Lupines and many other plants, is the right way to keep all the Snapdragons in flower for a long time. For a tall, or a medium height, make a choice of the best white seedling, which may be pricked out of a seed-bed of these Snapdragons, and propagate it by cuttings before they throw up for bloom in the early part of summer; and after they are rooted, plant them in the reserve ground, and prick off their flower stems as fast as they appear through the autumn, and they will be in fine order to remove to the flower-garden the following spring; or, where there is the convenience of a slight hotbed, they may be increased in the spring, and will be in time to flower the same season. They have been very much improved of late years, and there is no end to their variations; and of all plants, they and the wall-flowers are the least objectionable plants to mix in shrubberies, or for covering naked banks, or bare spaces under trees, where few other things could live.

Pentstemons.—Some of these are fine things in a flower-garden, but they furnish none for a white bed that I am aware of. The so-called White Pentstemon is only a milk-and-water looking thing, only fit for a shrubbery border, and most of them answer well that way; indeed, more so than in beds.

Œnothera (Evening Primrose), is a fine family of plants, producing some good bedders; but only two of them are suited for our white groups, and these are not used nearly to the extent they might be—either because they are affected by particular soils, as they certainly are, or their cultivation is not generally understood. The best of them is *Taraxifolia* or Dandelion-leaved, and should be used as an annual; the seed to be sown in August or February, and the plants turned out in May, in rich deep sandy soil, where they will soon trail out and cover a bed all over, and produce very large white evening flowers. The other white one is called *speciosa*, and rises to a foot or eighteen inches high, according to the richness of the bed. This species creeps at the roots like couch grass; and to make a safe bed of it, it ought to be transplanted every spring, making use of the middle sized roots, and throwing away the older ones, and all the weak ones. They will thus start anew every season, and should be in fresh soil if possible. Like the creeping bell-flowers they will continue six weeks or two months longer in flower than if the plants are allowed to remain undisturbed from year to year.

Nierembergia.—There is a little trailing species of this, named *calycina*, which for a little bed is not amiss, where a large variety of plants are prized.

Sweet alyssum.—This annual is the best edging white plant I know, and is the very last to yield to the frost, and it comes in as a variety for a bed not less than two feet over; it comes from self-sown seeds, and will bear to be transplanted until it is half-grown.

D. Beaton.

(To be continued.)

GREENHOUSE AND WINDOW GARDENING.

Old-fashioned Plants.—A satirist, in treating with the ups and downs which some plants have experienced during the last twenty years, would be inclined to say that, in the love of novelty, gardeners in many respects are imitators of the civilised and refined Athenians, whose great delight it was "either to tell or to hear of some new thing." Grateful as we are for novelties, we cannot be unmindful that many of these, though by no means ugly, had but little of the striking in beauty to recommend them, and that, therefore, when at length they were discarded, a kind of vague feeling crept over the mind that it would have been as well to have kept a few of those old-fashioned favourites, which had been turned to the right-about to make way for the new comers. A lady was so struck by the effect produced by a mass of a very common plant, that she could not avoid expressing ardently her desire that it would become *fashionable*; leaving us to infer that, until it was ensconced under the protection of that wayward arbiter of right and wrong, *fashion*, she would not feel quite at liberty to give the sweet thing a home in her parterre. The same feeling carried out, so far as mere plants are concerned, has a tendency to make the gardens of a neighbourhood *fac similes* of each other, and to lessen that pleasant variety which would ever be felt as a delightful change, when friendly neighbours visit each other. They who can deviate so much from *fashion* as to grow in full perfection some of our old-fashioned plants, such as balsams, &c., will not only show a spice of independence in their tastes and ideas of the beautiful, but may be certain to excite an interest among their visiting friends; nothing inferior to that which was felt in our younger days, when miles were cheerfully travelled to see a stage full of well-grown specimens of these splendid plants.

The Garden Balsam.—*Impatiens balsaminea*, or the *Balsaminea hortensis*, is a native of the East Indies, and most species of the genus are found in damp, shady, elevated localites, where the temperature never rises very high, nor falls very low; from 50° to 65° being considered a medium. This circumstance alone furnishes us with a key for its successful culture, and demonstrates its fitness for greenhouse and window decoration in summer So hardy, indeed, is the balsam, that if sown any time in April in a little heat, it may be transferred to the bed or border along with other tender and half-hardy annuals in the end of May, provided a sheltered somewhat shady corner, and nice light rich soil has been secured for it. The prettiest and shrubbiest balsams I ever saw were thus treated, and retained their beauty until the frosts of October. It is true they did not reach four and five feet in height and wide in proportion, like some giants upon a stage, after having been duly fostered in frame and pit; but, in point of beauty, there was no comparison between them and the miserable spindle-legged things we frequently see in pots. The greater portions of early-grown balsams have too much heat and too little air, and in very bright sunshine a slight shading would be beneficial. A singular circumstance connected with the whole family, is the extreme irritability of the seed vessel when touched when the seed is nearly ripe.

Culture.—Seed.—To secure fine double flowers it is advisable to save the seed from the best kinds, and keep it carefully for several years before sowing it. I am afraid my seed has been kept too long, for it seems more inclined to rot than to vegetate. Old seed will not produce such rampant plants as younger seed, but the colours will be finer and the flowers more double. All the beautiful varieties are only hybrids from the same original species, and, therefore, though varieties may be expected, even when the seed is saved with the greatest care, still, if care *is* exercised, a great preponderance of the new seedlings will resemble the parent plant. A wide field is here opened up to the investigator, for while in some families it is possible to propagate the peculiarities of a hybridised variety from seed, these peculiarities in the varieties of another family can only be secured by cuttings. To have fine balsams, it is advisable not to sow until the end of March or beginning of April. A slight hotbed is the best place, but a window sill, with a pane of glass placed over the pot, will answer admirably; and, if the weather was very cold in April and May, the pot might be set upon the chimney-piece at night, before the plants were well up.

Potting.—As soon as the plants are three inches in height, they should be pricked out separately into three-inch pots; set again in the bed; keep close until they are beginning to grow freely; shifted successively into five, eight, and twelve-inch pots; keep rather close after each shifting, but at other times give them air back and front, night and day, regulating quantity by the weather, so that you maintain a bottom temperature from 65° to 75°, and a top temperature ranging from 45° and 50° at night, to 65° and 70° during the day; allowing the pots to stand *free* on the surface for some time before transferring them to the stage. Nice little plants may be obtained for the window at a tithe of the trouble, but they would be *pigmies* when contrasted with the giants the others ought to be.

Soil.—For the first potting, two parts loam, two parts leaf-mould and one of sand. Every successive shifting the compost should be richer, and stiffer in its consistence; dispensing, at length, almost entirely with the sand, and using, instead of leaf-mould, well-rotted mushroom dung; or, what is better, cow-dung, at least two years' old, well aerated, not forgetting pieces of it thoroughly dried, to assist in keeping the soil open. The compost for the first potting will do for window culture.

Watering.—Unlike many other plants, with succulent stems that require little water at times, the balsam is a regular toper, especially in fine clear weather. No plant shows the want of water sooner, by its drooping leaves and nodding stem; and there is none that will thank you sooner for a drink from the water-pot, as vigour will almost immediately assume the place of apparent paralysis. These parchings and thirstings must not be often repeated, or your labour will go for next to nothing. I have been unable to look up some observations upon watering balsams with different solutions, and coloured infusions among the number—using the latter upon clear light-stemmed plants—but there is plenty of room for experimenting in this direction. We may mention, in passing, that if the compost is not very rich, liquid-manure must be freely given; and, as our opinion and practice are required, we would say, that we feel indebted to Mr. Barnes for his plan of brewing and *fining* his manure-water, which we generally adopt for plants in pots. *Our practice* is to give the solution weak and often.

Cockscomb *(Celosia cristata)*.—This is a native of tropical Asia. Like the balsam, it sports into varieties, but these are chiefly of a crimson, purple, or a yellowish colour; the former of which are preferred, and the deeper the red, or purple, the more they are esteemed. The *comb* is the receptacle, on the sides of which the diminutive flowers are placed. The finer the variety, the less freely will it seed. We shall chiefly notice the points in which its successful culture varies from that required by the balsam:—

First, *Soil.* This should be of a more loose and open nature, and not so rich; well-drained, assisted with manure-water and surface-dressings.

Second, *Temperature.*—This can scarcely be too high, if air and water are attended to, with abundance of light. They are partial to a closish atmosphere, though the combs and foliage should be dry before the sun strikes upon them. When growing, they will delight in a temperature of from 70° to 85. As the combs approach completion, the temperature must be gradually lowered, and then the plants will stand several months upon the stage in the greenhouse. Towards autumn little water should be given. Those who have not sown should lose no time, and give them the warmest corner too; a bottom-heat of from 85° to 90° will delight them. In growing them we have used two methods; the first demands more room, and ensures larger plants; the second requires less room, and furnishes dwarfer plants, with large combs near and overhanging the pot. By the first method, the plants are pricked out into small pots, and then successively shifted; giving them no check until the plants are nearly full-grown, when the comb appears, and swells with great rapidity. By the other mode, after the plants are shifted into three or four-inch pots, and encouraged to fill them with roots, instead of being re-shifted, they are allowed to get rather stunted, by withholding water, giving more air, and a cooler temperature, which starts the combs. When they are from a quarter to half-an-inch in size, the future form of the comb may be detected; all pointed ones are discarded; the plants are carefully shifted and re-shifted, and kept growing vigorously; the object being to throw that vigour into the comb, instead of the stem and leaves. By both methods all side-shoots are removed when the plant is young, whenever they present themselves.

Globe Amaranthe *(Gomphrena globosa)* is a native of India, and very pretty when well-grown; requires soil similar to the cockscomb, and not so rich as the balsam, but with a good proportion of leaf-mould. It requires more heat than the balsam when growing, and not so much as the cockscomb; though both it and the cockscomb, when fairly started, will get on as small plants in a window. When the plants are fully grown in a hotbed, and gradually inured to it, they will ornament a greenhouse for several months in summer and autumn. Seeds should be sown in a hotbed directly.

Browallia—so named after a bishop—is a pretty genus of plants, with blue, white, and lilac flowers, from South America. In addition to being sown in a slight hotbed, and potted and re-potted into light sandy loam, and watered frequently with weak manure-water, the common treatment given to the greenhouse plants in summer and autumn will suit them. The orange-coloured *B. Jamesonii* we have not seen bloom as yet. R. Fish.

HOTHOUSE DEPARTMENT.

Stove Plants.—There are other plants besides orchids in our stoves, and as we know that many of our readers wish them to be noticed occasionally, we purpose doing so every alternate week with the orchid culture, now that we have published the principal ground work of the latter. Even our orchid-growing friends will find these papers useful, as there are numbers of stove plants that associate with, and thrive well amongst orchids. We have frequently mentioned in the orchid papers that such and such orchids thrive well, or even better, in a common stove than in the house more especially set apart for their habitation; so, *vice versâ*, there are several stove plants that enjoy the atmosphere and flourish better in the orchid house than in the stove, especially during the growing season. We make these preliminary remarks to show that instructions in the culture of orchids and stove plants will be useful and interesting to cultivators of either of these great families of plants. It only remains, then, to mention the method by which we shall perform our pleasant task. We shall first describe such really good, though old, stove plants as have handsome foliage, fine showy flowers, and bloom with good management freely; and, occasionally, we shall deviate a little, whenever a new fine species comes under our notice. We have a wide field before us, for the number of truly splendid plants, natives of warm climates, requiring the heat of the stove is very great.

We might very properly here describe the best kind of house for these plants, but we think it better to defer that to a future opportunity, passing it by with this remark, that the nearer the plants are to the glass the stouter they will grow, and the more freely they will flower, and the colours of the blooms will be brighter.

Of the families of plants that are the most splendid in bloom, that have fine foliage, and are every way worthy of cultivation, we shall commence with the genus

Ixora.—It always seems to us somewhat pedantic to mention the reason why a plant is so called, yet as all kinds of knowledge is desirable, for a wise man has said that "knowledge is power," therefore, we suppose it will be useful to know the reason why these really fine plants are called by the family name Ixora. Well, then, this plant is a native of Malabar, in the East Indies; the inhabitants have a god named Ixora, and as they admire (for even savages, as we call them, love flowers) the splendid blooms of this beautiful shrub, they think them worthy to be accepted by their idol named Ixora, as an offering to him either to appease his wrath or propitiate his favour. The name of the idol has descended to the offering, and botanists have immortalized this idol by giving his name to this fine race of plants.

The first species, *Ixora coccinea*, or *grandiflora*, for it is known by both names, is, without doubt, the finest of all stove plants. Though introduced a long time ago there are no plants that surpass it, when well grown, for beauty and grandeur; the only charm it is deficient in is fragrance, in that particular its relative *Luculia* far surpasses it; in all other points it surpasses all its compeers.

The culture that it requires is what we have principally to do with, and in detailing the culture for *Ixora coccinea* we shall describe that which will suit the whole family. The first thing an amateur wants to know when he receives a plant is—what *soil* does it require? Generally speaking, we may say he will obtain that information by observing the kind of soil it is growing in when he receives it from the nursery, but that is not *always* to be depended upon, besides, he may obtain a plant or a cutting from a friend, and in either case he is at a loss to know what soil to pot his plant in. It is to supply such wants that the writers for The Cottage Gardener tax their brains and brush up their memories, and strive, in plain, homely language, to give all the information their years of experience have given them, to make the culture of all kinds of plants easy to the tyro in gardening.

The soil that we have found *Ixoras* to thrive and flower best in, is peat obtained from a place where there is a contant deposit annually of leaves; these decaying, layer upon layer, form a rich suitable soil for numbers of stove plants, but particularly desirable for the plants about which we are now writing. If such soil is difficult to be found, light loam and rotten leaves, well decomposed, with a fair mixture of white sand, will answer nearly as well.

Culture.—The way to obtain, or to make, a fine specimen fit either for ornament or exhibition, we shall next endeavour to describe. A young plant in a 5-inch pot should have four or five branches springing from the bottom; if it has not these branches they may be obtained by cutting the plant partially down. These should be stopped at the third pair of leaves, and as this is the best month in the year for that operation, let them be potted immediately into 8-inch pots, well drained; when that is done, tie down the branches nearly to the edge of the pot to short sticks, give a gentle watering, and, if possible, plunge them into a gentle bark-bed heat, this will assist their growth greatly. In three months they will require potting again, into 11-inch pots; if they have grown well (which they are sure to do if properly managed, that is, if frequently syringed and moderately watered, and shaded from the midday sun) they will then require stopping again, and the young branches that have sprung up from the centre should be tied down again nearly to the first tier; they may then be replunged in the bark-bed, and remain there till September. If they have progressed as they ought the plants should be more than a foot in diameter, thick and bushy, and half-a-yard high. They had better now be lifted out from the tan and placed in the stove, to remain there all winter; place them as near the glass as possible, and keep them rather dry. This treatment will induce a gentle rest, and will cause them to bloom freely the following season. If very large plants are desired let the same treatment be followed the next year, allowing no flowers to be produced, and increasing the size of pots, stopping and tying out the branches so as to form a pyramid of them; the lower branches should be encouraged to push out, so that the plant will be widest at the bottom. At the end of the second year the plants should be at the least two feet in diameter, and the same number of feet in height, and should produce 12 or 15 of their magnificent heads of scarlet orange flowers.

The above description and treatment we intended more particularly for *Ixora coccinea*, but the same treatment will suit the whole genus, including that fine new species lately introduced, the *Ixora Javanica*. Below is a selected list of the species more particularly worth growing.

Ixora coccinea (Orange-scarlet Ixora).
„ *crocata* (Saffron-coloured I.).
„ *longifolia* (Long-leaved I.), scarlet.
„ *flammea* (Flame-coloured I.).
„ *Bandhuca* (Bandhuc I.), flesh-coloured.
„ *Obovata*, or *purpurea* (Obovate-leaved I.), purple.
„ *Javanica* (Java I.), pink.

FLORISTS' FLOWERS.

We trust our amateur florists have been wide awake during the sharp frosty weather we have had lately, and have taken advantage of our almost weekly warnings that such weather might come upon us unexpectedly, which, if not daily, or rather nightly, guarded against, would be very injurious to the delicate and beautiful objects classed as florists' flowers. We can only this week find room to reiterate our warnings, for we are by no means yet certain that our favourite plants are safe from spring frosts. We remember an old successful florist, Mr. Emerson, of Barnet, many years ago urging upon florists the necessity of warmer covering than usual at this uncertain season, and recommending even good warm blankets, to protect the rising blooms of *Auricula* and *Polyanthus*, and other tender favourites.

Carnations and Picotees ought now to be quite finished potting. Below is a very select list of the best show kinds, which every florist intending to exhibit a stand of 12 ought to possess.

CARNATIONS.

Scarlet Flakes.	per pair.	
Cardinal Wolsey (May's), one of the best	3	0
Firebrand (Hardwick's), very fine	3	6
King of Scarlets (Ely's), extra fine	2	6
Orlando (May's), a good firm flower	3	6
*Rose Flakes.**		
Orlando (May's), extra fine, a well-formed flower	5	0
Ariel (May's), also good, with beautiful colours	5	0
Prince Arthur (May's), extra fine, with long pod	5	0
Briseis (Tomlyn's), very good, but not quite constant	2	0
Purple Flakes.		
Beauty of Woodhouse (Mansley's), clear purple and white	3	6
Squire Trow (Jackson's), extra fine, a good show flower	3	6
Wm. Penn (Turner's), extra large, fine flower	3	0
Queen of Purples (Holiday's), heavy colour, pure white, a truly grand variety	5	0

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* Brookes's Flora's Garland is undoubtedly the finest of all Rose Flakes yet known, but we have already recommended it.

Scarlet Bizarres. Colours—scarlet, black, and white.

	per pair.	
Brutus (Calcott's), each petal well marked with the three colours; a firm, rose-edged flower -	2	6
Prince Albert (Puxley's), ditto, but a large flower	5	0
Brilliant (Hepworth's), colours very bright, fine form - - - - - - -	2	0

Crimson Bizarres. Colours—crimson, black, and white.

Caliban (May's), very fine, full flower - -	3	6
Lord Milton (Ely's), a really good old variety -	2	0
Rainbow (Cartwright's), an old favourite first rate ditto - - - - - - -	3	6

Pink and Purple Bizarres. This class has only two colours, but they are irregularly mixed so as to form a true bizarre flower.

Edmund (May's), has a high character - -	2	6
Princess Royal (Sealey's), a large well-formed flower, colours good - - - - -	3	6
Prince Albert (Puxley's), pure white, well mixed with purple - - - - - -	3	6
Epaminondas (Hogg's), an old favourite good flower	2	0

Our space being full we must defer the list of picotees till next week. T. Appleby.

THE KITCHEN-GARDEN.

The present season has been one of the finest ever remembered for trenching, forcing, and surface-stirring the soil; and wherever these matters have been duly attended to, the soil must be in a fine, healthy, and well pulverized condition. If due attention has been paid to our directions during so favourable a seed-growing season, strong healthy plants will be sure to appear; and with careful after attention, crops of all kinds of vegetables will certainly be luxuriant and productive. Hoeing and scarifying are the principal attentions required; and if such operations are performed in due season, much time and after labour is saved, and a weed never has the chance of appearing. As to the slug, or other destructive vermin, there is but little fear of them, as they and their larvæ get so constantly routed about by the continual stirring of the earth, that their appearance becomes very scarce. Those who have not thought it worth while to adopt this system, and who are, consequently, pretty well stocked with such pests as we have been describing, may feel themselves a little annoyed, as soon as showery weather sets in, to find how much attention will be required, early in the morning and late in the evening, to prevent the destruction of their crops. New brewers' grains and new bran are two of the best articles we could ever discover for enticing the slugs together. We lay a good tablespoonful of either one or the other in small lumps here and there, about the places which they frequent in the dusk of the evening, and in two or three hours afterwards they will be found congregated together, and may be destroyed in quantities. We formerly used sometimes to collect them, by taking them up with a trowel, and putting them into a pail; and, at other times, we have gone round with a bucket of hot slaked lime, dusting it over them, and collecting them and their bait together early the next morning.

Asparagus Planting.—The season for planting this vegetable will soon arrive. Our system is, after the soil has become in good condition (the directions for which have been previously given), to set out the rows at two feet apart, stretching the line from end to end, and with a hoe drawing a drill on each side of it, placing the roots astride, in a regular manner, over the little ridge thus formed between the two drills; drawing the earth up over them immediately with hoe or rake, and pressing it down with a gentle tread of the foot, and then giving it the finishing touch with either of the same tools again.

Routine Work.—*Basil* and *sweet marjoram* sow in full crop, as well as *carrots;* also full sowings of *celery.* This latter vegetable should be sown on a little heat, or on a well-prepared soil in a warm situation. Prick off and repot *chillie* and *capsicum* plants, as well as *tomatoes.* Sow the late kinds of *peas* and *beans* in succession, and attend to the surface hoeing of those now making their appearance. A drill of the round variety of *spinach* should also occasionally be sown. Full crops of *parsley* may be sown too, and the early-sown now coming up would be the better for a gentle raking, to break the surface crust. *Parsley sown in pans* for transplanting should now be planted out on well-prepared rich soil, in rows one foot apart each way.

Mushroom Beds for the summer should be made in shaded, cold situations, or dark sheds. Underground cellars, or caves of any kind, are famous situations for mushroom culture in summer. Two parts of well-made stable dung to one part of good tenacious loam, well incorporated together, and made as firm as possible by treading or ramming, will be found excellent for producing an abundance of fine mushrooms of the best quality. Mushroom beds at this season should be made one-third slighter or less substantial than in the autumn; they should, if possible, at all times be cased about two inches in thickness with good healthy loam, well beaten down.

Melons now require attention. Keep up a kindly uniform heat to those about showing fruit; take particular care in stopping all the leading shoots, as soon as they show fruit, one joint above the fruit; leave those only that show the strongest for fruit, and if only one or two of these are in bloom in a light at one time, pick them off. Watch the opportunity when four, five, or more open their blossoms on the same day, and pay due attention to the impregnation; shut up early, and make use of less humidity for a few days afterwards. Increase the heat to 75° night interior temperature, and a crop of even-sized melons may be expected as the result. These should be duly thinned to the requisite number of four or five of the handsomest-shaped fruit to each light. This must be regulated, of course, according to the strength of the plants. Liberal applications of tepid, clear, liquid manure should be given once or twice a week until the fruit has swelled to its full size, when water of any kind should be withheld, gently sprinkling the back or interior sides of the frame or structure every fine evening at shutting-up time with tepid water, which will maintain a healthy humidity throughout the night. We never, at any part of the season, apply the water over the foliage of either melon, cucumber, or vine: we always place the blossom end of our melons to the north, and the stalks to the south aspect, which prevents their cracking. James Barnes.

MISCELLANEOUS INFORMATION.

ALLOTMENT FARMING FOR APRIL.

Soiling.—A proper economy in the management and application of manures is well known to be, after thorough draining, the true foundation of either good gardening or farming. For in very truth, although their operations would seem to differ so widely, they rest on a precisely similar basis, and a first-rate kitchen or commercial gardener may be safely looked up to as a model by which the proceedings of the allotment holder may be shaped. As bearing on the manure question, we would point to what is termed "soiling," as applied to live stock; and whatever benefits may be derivable from it to a farmer on a larger scale, of this we are assured, that it is eminently calculated to benefit the cottager who keeps a cow or two.

By a "soiling" system, we mean the cutting and carrying the green food to the shippon, shed, or cow-house, instead of consuming it in the field. By this practice, about one-half the usual quantity of land allotted to a cow will suffice. By this mode, the cottier's land will be found to increase in depth of tilth and richness annually, for his manure will annually increase.

Green Crops.—Of course a difference in the mode of cropping would be necessary; for a variety of other things creep into, and form part of, this system in different parts of the kingdom; the difference being, for the most part, based on the character of the soil in its relation to any given crop. Thus, *pad clover* and *rye grass* mixed, about 12 lbs. of the former, and a peck and half of the latter, is a very general favourite. *Lucerne*, also, to which we alluded at page 292, is scarcely second to any crop, especially if laid down on soil which has got into fine tilth, and become perfectly clean through previous root-cropping, under high culture. About 12 lbs. of seed to the acre will suffice. As *early spring feed*, too, *rye*, autumn sown, is a useful adjunct; sometimes, mixed with vetches. Of course, potatoes, swedes, mangold, cabbages, carrots, and the other valuable roots, will chime in with such a plan as winter soiling; as, also, all the other items suggested in previous allotment papers; the main difference being, that there will be no need of what is termed permanent pasturage, and, indeed, little, if any, under hay, in the common sense of the term. *Oats* may alternate occasionally with this system, both in order to improve the rotation by creating much organic matter in the soil, and also in order to provide straw to consume with the roots in winter.

Some caution is necessary in giving *clover* to cows, its swelling tendencies are well known. The best way is to cut it a day, at least, before it is consumed; the beast, too, should be attended on the principle "little and often." By these means, if a small enclosed fold could be attached to the shippon, it is astonishing what a mass of manure would be scraped together in twelvemonths by a hard-working cottager —"The hand of the diligent maketh rich." We turn now to the minor affairs of the allotment holder; the time has arrived when the amount of diligence and skill exercised during the next three weeks will determine the amount of prosperity of the ensuing winter. We will endeavour to take the matter in the order of culture necessary.

Preparation of Soil.—At page 292, we adverted to this; we now repeat, "be not afraid of a little extra labour." The weather has been so unusually fair, and so very dry, that land which has had a due share of attention, will be in better order than has been known for some years.

Manuring.—Let every plot or bed be at once apportioned, if not hitherto done, in the most decided way; and let the proper amount of manure necessary, be decided on in a sensible manner. There are those who apply the same amount to every crop, and in the same way. If they are ignorant, we hope by our paper to enlighten them; if they are indifferent, they do not deserve so great a boon as a nice garden. In determining the quantity and also the quality of the manure necessary for any given plot or crop, it is proper to note the effect required; whether prospective or immediate. At page 292, we remarked on this head, under the section "breaking-up ground for allotments." We beg our readers to refer to that portion. It is there shown that as to "rest land" about to be converted into ground or root crops, especially the latter, the young plant requires to be coaxed in its *earlier stages*, if a full crop is expected. We would therefore advise the allotment holder, who, though provident habits, has a few extra shillings and some extent of ground, to purchase a little *real* Peruvian *Guano*: than which nothing will be found more suitable to the purpose in hand. Now, as this guano is expensive, it behoves the allotment man to mind how he lays his cash out for it; for the majority of guanos hitherto in the market show an amount of adulteration which would make the vendors blush, were it not that they had become exceedingly callous to those feelings, which we trust still cling to humanity in general. We have not space here to quote the pith of a lecture on guanos, by Professor Way, delivered at the Meeting of the Royal Agricultural Society of England, at their house in Hanover-Square, London, on February 27th. We can merely say, that the adulteration is immense; and that unless our allotment readers can get some upright and kind friend to purchase their modicum of this precious article from a first-rate source, such as Gibbs and Co., they had better be content with the soot of their chimney, and such other homely material as they can scrape together. Of the latter, we may name the old rotten material from the wood-pile, old tan, old decayed leaves, fowl manure, very old manures, gone almost to a powder, mellow ditching if not clayey, pond mud dried, &c. &c. Any or all of these things are good to mix with soot, guano, or any other concentrated or caustic manure, not only as increasing its bulk, but in order to subdue that too sudden and sometimes prejudicial effect, which such highly concentrated matters are apt to create, and which although ultimately of immense benefit, are but too apt to engender a vast amount of prejudice against their application.

Parsnips.—Sown of course; if not, let them be put in immediately. A loamy soil preferable; deep digging with manure in the bottom of the trench the best policy. Kind—the large Hollow-crowned Guernsey.

Carrots.—Let the principal crop be sown from the tenth to the twenty-fourth of April. Soil—deeply dug and friable. Manure, if any, at the bottom of the trench. The young plant "coaxed," as before suggested, by scattering those mixed materials in the drills. We still advise occasional sowings of the Early Horn carrots, either in beds or drills. Plenty advice will be found in our back Allotment Papers.

Turnips.—The swedes, if sown to remain, should be got in about the middle of the month; the ground should above all things be well worked, and by all means let some stimulating manure be put in the drills. This is one of the most material points in swede culture, for we have known crops secured, side by side with others which have totally missed, by these means. Rapid growth is the best chance against the fly. A little Peruvian guano, and some soot, mixed with any old vegetable soil, or very old and mellow manure, will be found excellent. A seed-bed must not be sown until the beginning of May:

that is to say, if the plants are to succeed early crops.

Peas.—A good sowing of the Green Imperial may now be the last with the allotment-holder; at least, those with limited space. These will be off by the end of July, and the ground ready for winter greens. Of course the cottager will hoe through his former sowing, and stake them in due time.

Broad Beans.—We said, at page 293, that we would not have allotment-men sow later than the middle of March. If, however, they *will* try late crops, let them not defer it beyond the present period; choosing a cool and half-shaded situation for them.

Mangold-wurtzel.—We would have all allotment-men, or cottagers who keep a cow, grow some mangold. It is such a long-keeping root, as to come in cleverly after swedes are all gone; indeed, it might be had good until June or July, if necessary. As bearing on the "soiling system," alluded to at the beginning of this paper, it is of much benefit; for, towards the end of March, and thenceforward to the beginning of May, there is little pasturage; the hay-stack is generally a poor shrunken thing, the oat-straw is gone in wintering, the swedes are becoming exhausted, and the rye, or other early cutting, is not yet ready. For this period, then, principally, we would reserve the mangold. Besides, who can say that the dreadful potato-scourge may not visit us again with increased terrors? To be sure, wheat is cheap, but still roots are always in demand as a convenience; and some mangold and swedes, at least, save a draw on the carrots and parsnips,—which latter should feed the cottier and his children; the other, principally as food for the cow and pig.

We are now drawing near to the limits of our paper, but we must beg to offer a few other scraps of advice.

About onions, lettuces, parsnips, spinach, rhubarb, &c., we spoke in the paper for March, page 292; we need not now, therefore, enlarge on those matters. We pass on, therefore, to

High Culture.—Towards the end of this month vegetation will be in a most active state, and to attend to young crops betimes is at once the duty and interest of the cottager. Let him remember that not a weed he sets his eyes on, but robs him day and night. And as "little strokes fell great oaks," so with the weeds. Any one taken individually is surely insignificant enough, but view it in the light of the progenitor of thousands—aye, tens of thousands—and what then? Crops shaded and hindered of development, ground exhausted without repayment, labour increased; surely these are neither small matters, nor matters of imagination only! Look well, therefore, to your young crops betimes, study the weather, and by timely weeding, hoe culture, and carefully thinning out, success will assuredly follow. At any rate, to our allotment friends we say, try it one season at least.

In speaking of allotment, it will be seen that we have all along turned our attention, in some degree to the cottage gardener of the olden time. Such is frequently in a different position from the allotment holder, inasmuch as the cottier, in many cases, takes to a plot of ground well stocked with fruit-trees. In such cases, it is not an uncommon thing to find him counting on nearly paying his rent with his apples, his gooseberries, his black currants, or his damsons, as the case may be. Where such is the case, the mode of cropping between must be adapted to the situation of the fruit-trees; for, if these be good, and the soil suits them, they will pay generally quite as well, or better, than vegetable culture, providing that they are kept at proper distances, and that no unprofitable trees are allowed to cumber the ground. We advise the cottager, however, not to dig nearer than within six feet or so of the stem of established trees, and three feet from young trees recently planted. We know of many cottage gardens, in this part of the country, where the owners pay the rent with their damsons, their black currants, and their apples, at least, two parts out of three; producing, also, plenty of vegetables for the family, and roots for the pigs.

Cabbages and other Greens.—In concluding for this month, we may first observe, that we find we had omitted to point to the sowing of the various greens for the autumn and winter's produce. April and May are the most eligible months, but the period of sowing must, of course, be ruled by the period at which they will be wanted to succeed or to introduce between the rows of any given crop. For kinds and farther advice in detail, we refer our readers to back allotment papers; and in our next, we will handle cultural matters, &c.

THE POULTRY-KEEPER'S CALENDAR.

April.

By Martin Doyle, Author of "Hints to Small Farmers," &c.

Rearing of Poultry.—A cottager's family ought to know how to rear poultry; neither much art nor extraordinary care is required for this purpose, and considerable profit may be realized by the sale of poultry and eggs. With the advantage of a garden or field, and little enclosure, two or three sorts may be reared.

And how pleasant is it to see the children of cottagers—who have not many sources of amusement—watching, with eager curiosity and delight, the progress of life in the chick, from the day when its first faint chirp gives warning of its desire and efforts to issue forth from its protecting shell to the period when it becomes a proud and courageous husband, or a nursing mother "gathering her chickens under her wings," and evincing the self-denial, anxiety, and fortitude, which teach the moral lesson to Christian mothers that tenderness, devotedness, and resolution are duties to be fulfilled by them towards their children; while the same teaching instructs these—their offspring—that they should obey their mother's warning voice, flee to her for protection, and confide in her love.

Hatching.—The number of eggs for the largest hen ought not to exceed 15; 12 may be considered the average for well-sized hens. The nest should be of soft straw, laid on or near the ground, and in a warm aspect.

Some hens will scarcely leave the nest for food or water, therefore both should be within their reach; but it is better to encourage her to leave the nest for a few minutes once a day, in order to feed and stretch her legs. Taking daily food is necessary not only to preserve her strength, but to keep up the warmth of her body, which is essential in the process of hatching. The greater the circumference and weight of her body, the greater the number of eggs which the hen can cover, and the greater the heat she imparts; for this reason, among others, and the convenient length of her legs, the Dorking breed is superior for sitting. A long-legged bird, like the Malay, would feel it more difficult to bend her legs in a proper manner under her body, and continue in that constrained position than a bird with shorter stilts; as a tailor with very short legs and thighs can, we presume, sit more at ease on his board while he amuses himself with his *goose*.

It is useless, if not prejudicial, to turn the eggs in the nest; leave the hen to her own instincts in this respect, she will manage them properly. It is not injudicious however to examine the eggs, as Mr. Richardson directs, about the twelfth day, to ascertain whether they are fruitful :—"for this purpose hold the egg between your hands in the sunshine, if the shadow which it forms waver, keep the egg, as the wavering of the shadow is occasioned by the motion of the chick within; if it remain stationary, throw it away." On the 21st day the chicks begin to peck at the shell with their upper bills, and faintly chirp at their labour, as if they were saying, "I want to get out." But perhaps they may not be able to make an opening with their little pick-axes for many hours, yet it will be better not to assist them, unless it should at last be almost certain that they cannot do their own work.

After examining the eggs and listening to the chirp within, the eggs, if replaced, should be set on the large end, otherwise the chick would be turned upside down, in which position it could not peck at the shell. One object of the examination should be to ascertain, through the light, if the yolk has been taken up into the body of the chick to supply it with the necessary nourishment for 24 hours.

The best instrument for opening the shell is the point of a pair of scissors; and great tenderness should be used in freeing the prisoner from the shell, in case that its feathers should be glued to it, which will probably be the case if the chick do not extricate itself within a few hours after the opening of the shell has been first made.

For the first fortnight the chicks should be frequently fed with crumbs of bread soaked in milk during the day, and afterwards with grits, curds, rice boiled in butter-milk or skim-milk, barley meal, potatoes, &c., according as they are to be fattened off or not.

During the first month, the nursing hen is usually tethered by the leg to a small coop, placed on a grassy sward in sunshine, or confined in it, in order that at her warning voice the chickens may enter in through the bars. Unless she is a very giddy and careless mother, it is more humane to leave her at some liberty after her long sitting, in the full enjoyment of her little family, as far as their security will permit.

Sometimes good sitting hens are made to sit twice in succession, by transferring the chicks to foster-mothers; this is a barbarous custom, unnatural, and therefore to be discountenanced, unless under some very peculiar circumstances.

Turkeys.—The turkey lays all her eggs wherever she has made her first nest, which will be in some secluded nook, if she be not watched when she gives that peculiar note of warning which a poultry woman understands. The turkey hen lays sometimes every day, sometimes every second day, and sits for 32 perseveringly; she is a gentle, unoffending creature, and yet the turkey cock would do her eggs, and herself when laying, an injury if he could find them.

The chicks of the turkey make their appearance on the 31st and 32nd day, and are to be treated as in the former case, that is, they are to be left to their own efforts as long as possible, and not removed from the nest for at least 12 hours after they have been liberated from the shell. As the mother is not a clever intelligent bird, the care of a woman or girl is constantly required to feed the young birds, to shelter them from showers, or excessive heat, until they are six weeks old, at which time they will eat boiled potatoes and turnips, or nettles, lettuces, &c., chopped and mixed with meal or grits, without her hand. Their first food should be curds and hard egg, with crumbs. The boarded coop will be the best security for them against sudden rain, after they have been housed until the weather has become sufficiently mild to admit of their taking the air. The confinement of the mother in or near the coop will be indispensable, if their be no enclosed yard, because turkeys are determined ramblers.

Geese.—

> "On Candlemas day
> Good housewife's geese lay."

The goose—which in the natural course of her habits began to lay in February or early in March—is perhaps now desiring to sit after having laid (always in the same nest where her laying commenced) a sufficient number for hatching, which we have stated in the calender of last month to be 15. It is decidedly more economical to have goslings produced from the eggs than to consume them prematurely, if there be a run for them on a common more especially. Their value and usefulness is scarcely calculable. We will suppose that a village green supports only 50 brood geese, the owners of these would be dissatisfied if they got but 10 young ones from each in the year besides eggs. This gives 500 geese per annum, without taking the chance of a second brood; multiply 500 by the number of village greens and we will form a very inadequate estimate of the importance of the bird. And all this with scarcely any outlay. The little trouble they demand of being secured at night and let out in the morning, of setting the geese and pegging the goslings, is a source of amusement and interest to thousands of aged and infirm persons, in whose affections their geese stand second only to their children and relations.

The period of incubation for the goose is 31 days, during which the gander may be near her, if he chooses, without any danger of his doing mischief. He is a quiet, loving mate, and has been known to take a turn at sitting on the eggs. The goslings must not be let near water for a few days after their birth, and must be kept dry and warm at first, like the young of other poultry. Green food and garden roots may be soon mixed with meal for them. Early geese should be well fed for the early market.

Ducks.—The period of incubation with them is also 31 days. But they are not often employed as nurses, on account of their propensity to quit the nest for a cold bath. Ducks are very prolific; and as they will often lay a great many eggs in the season, it is perhaps better on the whole to set some of their eggs, (say from 9 to 11) under a large hen, or from 15 to 18 under a turkey; though when they are able to run about and swim they cause dreadful terror to their affectionate foster-mothers, who run round the water intreating of them not to drown themselves, as they fear they are heedlessly about to do, but without being attended to by the ungrateful objects of their solicitude, as sometimes happens to other mothers too. Ducklings ought not to be allowed access to a pond before they are a fortnight old, though they may be allowed before that time to paddle in a flat dish. The care and feeding which is usual with goslings at the beginning should be observed with ducklings.

Varieties.—The two best kinds of duck are the *Aylesbury* and the *Rouen*; but we shall confine our attention to-day to that first-named.

It is quite white, breeds early, and consequently is reared in large quantities for the London market. Many cottagers in Buckinghamshire obtain a chief part of their living by raising these ducks; the interior of their cottages is fitted up with pens for the ducklings; these being raised chiefly by hand, their care devolving upon "the good wife of the house."

BEE-KEEPER'S CALENDAR.—April.

By J. H. Payne, Esq., Author of "The Bee-keeper's Guide," &c.

By the time this paper meets the eye of my apiarian friends, the busy month of preparation with all provident bee-keepers will be just commencing; both hives and boxes are now all cleaned and arranged, ready for being placed upon the stock-hives at the end of the month; those hives that required fresh painting are already done, or will be immediately set about; and, where Taylor's Amateur's Hives are used, guide-combs will be fixed upon the bars, the method of doing which I will give in Mr. Taylor's own words:—

Guide-combs.—"Pieces of clear *worker-comb* should be reserved for guide-combs (or decoys for glasses). Upon each of the side-bars, nearest the centre one, a small piece of comb should be fixed. This is easily effected by heating a common flat-iron, slightly warming the bars with it, then melting a little bees-wax upon it. The comb is now drawn quickly across the heated iron, and held down upon the bar, to which it firmly adheres, if properly managed. These pieces of guide-comb need not be more than two or three inches in diameter. Care should be taken that the pitch, or inclination of the cells, is upwards from the centre of each comb. *Drone-celled combs* for this purpose are to be avoided, as well as those with *elongated* cells." Glasses will be provided, and guide-combs fixed in them also.

This is not a busy month for the apiarian only, but with his bees as well, in bringing in pollen. Mr. Golding tells us, that the neighbourhood of willows is of great advantage to the bees in early spring: should a few fine days accompany their flowering, many hives will be enabled to ward off the impending famine which but too often then threatens. He says, that from the 20th to the 30th of March, in 1830, the weather was so favourable as to enable the bees to make an extraordinary collection; single hives in some days gained in weight upwards of three pounds each, and worked in wax, where room was given, as vigorously as at Midsummer. The spring of 1841 was a very similar one; and he says, that his hives, on the 16th of March of that year, gained from two to three pounds each during the day.

Pollen.—The first collection of pollen that I have witnessed this year was on the 15th of February; from its appearance it must, I think, be gathered from the winter aconite, a good deal of which is growing around me. An excellent thing this, with the Cloth-of-gold crocus, to cultivate for a very early supply, for they afford both pollen and honey in considerable abundance: but I am by no means an advocate for cultivating plants exclusively for bees, except it be a few very early flowering ones: for though you may cultivate borage, and mignonette, it must be to the surrounding country that the apiarian should look for his chief supply—to the fields of white clover, the woods, the heaths, &c., &c.

Bee-dress.—As the season for going amongst our bees is fast approaching, and as careful apiarians are desirous of having all things ready for use before they are immediately required, and as being well armed against the stings of their bees gives confidence and coolness to the inexperienced operator, both of which are so essentially necessary to the successful accomplishment of his object, I will give the plan of a very simple and convenient bee-dress, which has been kindly handed to me by a friend. It is formed of green leno, and so made as to inclose the head, neck, and shoulders; indeed, it is like a bag, with sleeves to tie at the wrists; the sleeves are made of green glazed cambric. It forms altogether a perfect panoply, and the most timid person, with its aid, may perform the most difficult operation with the greatest coolness, and without the possibility of being stung.

Young Bees.—The first time of my observing young bees this year was on the 1st of March, at some of my strongest hives. They may be known by their colour, which is something lighter than the old ones; and by their unwillingness to take flight upon first coming out of the hive. They may be seen to turn round several times upon the alighting board, and to run from side to side of it, as if afraid to trust themselves to their wings.

Drone Bees.—Drone bees usually make their appearance towards the middle or the end of this month; their first appearance is very gratifying to the bee-keepers, for it proves to him that his stocks are in a healthy and prosperous condition. It is said that the celebrated apiarian, Bonner, was always so delighted at their first appearance, that he made the day one of festivity and rejoicing for himself and all his family.

Robbers.—As considerable robberies frequently take place in this month amongst the bees, attention is required to discover if any hives are attacked, and when it is found to be the case, it will be necessary to narrow the entrance of the hive, so that one, or two bees at most, can go in at the same time. The weak stocks, in general, are those that suffer from pillage. Robber-bees may easily be distinguished from others, for they fly rapidly round the hive, and hover before the entrance for some time before alighting; and when they venture to do so, they are generally seized by some of the sentinels which guard the entrance.

MY FARM-YARD.

How true it is that all nature rejoices in the spring; and the farm-yard at this season of the year possesses very great attractions. Such an assertion would cause a smile to creep over the face of those who were born and bred in towns, but my country readers will well understand it. Our possessions at this time are all on the increase: the cows have calves by their side; the sow her litter (of, it may be, some eight or ten little ones); the sheep are feeding greedily on the "preserved bits of grass," their lambs bounding and frisking around them; hens are sitting on their eggs, watching, I should imagine, anxiously for the time in which they may introduce their progeny to the light of day, or, perhaps, in some few and favoured farm-yards she is busy searching for food for her brood, her wearisome task over, and she is now deriving pleasure from her patient sitting. Some hens do not at all like the confinement necessary to bring the eggs to perfection: I have one at present who brought out her first brood remarkably well, but since that time she has declined sitting longer than a week at a time. I have tried her three times, and each time she has had the ingratitude to spoil thirteen eggs, although I took every precaution to tempt her to remain on her nest—such as placing food and water within reach, "sitting" her in a quiet place, &c., all which trouble would not have been taken had she not been a *beauty*, and, consequently a pet. Even in reference to the inmates of a farm-yard, "the world judges by outward appearances" more than it ought to do. Cows may, from the 1st of April, be left out at night; this will help to economise your hay, and will also give you more milk, natural grass always producing more than hay and roots. Vetches, Lucerne, and tares will soon be ready for the scythe, therefore, put up as much grass as you possibly can for hay. Grass that you intend to cut should not be stocked after Lady-day, or, at any rate, after the 1st of April. Many people recommend its being put up the beginning of the year, but this in small "holdings" is almost impossible, nor do I think it of very great importance, at least, I mean that the benefit you derive from having more pasture, during the early part of the year, more than compensates for the loss in the bulk of the hay crop. When your sow litters, take great care that she is not disturbed; that the straw on which she lies is not too long, and that she has plenty to drink. If these points are not attended to, the young pigs are often destroyed, either by being overlayed, or by the mother's killing them. Even when all these precautions are taken, there are some sows who will destroy their young. I am sorry to be obliged to record so sad a fact of my favourites, yet it is true, though I hope and believe very rare; and I think it has generally been ascertained that deficiency of milk, provided for the young pigs' nourishment, was always an accompaniment to this piece of barbarity. This, in some measure, softens the feelings towards the unfortunate animal; but whatever may be the cause, there is only one course to pursue, and that is, fatten the sow immediately, and as quickly as possible, so as to kill her before the hot weather sets in; and as bacon is not first-rate unless salted in cool weather, I should advise its being sold fat to the butcher, if possible.

In my last paper, I promised to make some remarks about rabbit feeding, and as I think it would be a great source of comfort to the cottager if rabbits were kept, I will say all I know about them. Books recommend you to feed them on "oats, hay, beans, and a little green food." Now, I know from experience, that if you wish rabbits *to pay*, you must not feed them daintily. I dare say they will be fatter and better flavoured if fed on the "fat of the land," but I think the cottager, and those who study economy, will be quite satisfied if they can see a couple or two of rabbits on their table each week, with a very slight outlay of money, and will not be likely to complain that the flavour is not so good as it might have been had oats and beans been given to them constantly. If a garden is owned by the rabbit keeper, nothing can be better for them than the tops of carrots and celery; the roots they are very fond of, but as they are used in the house, it would be wasteful to give it to them. The hedges supply much that is useful for rabbit feeding. Wild parsnips and the common dandelion root they will eat freely; and as, of course, they must feed when in a wild state upon such food, nature points out that it is good for them. Children could be well and agreeably employed in collecting such food. Great regularity should be observed in feeding rabbits; three times a day is better than twice, for if much food is given them at once they tread it under foot and waste it. A handful of hay should constitute the middle meal, and that will prevent the green food disagreeing with them. A few tea-leaves, squeezed dry, and given to them now and then, is a good "medicine." When the doe is about to bring forth her litter, great care must be taken that she is not disturbed, for, if frightened, she sometimes devours her young ones. She must also be well fed; and immediately after they are born some warm gruel, or warm milk, should be given to the doe. Rabbits will breed all the year round, but it is much wiser to have litters only in the summer, for rabbits born in the winter are difficult to rear, and the doe's strength soon wears out if she is allowed to have more than four litters in the year; and as they generally have from six to ten young ones at a time, a large number will be reared even then. A rabbit, if carefully attended to, is fit for the table at three months; but, generally speaking, it is more profitable to keep them another month, as they are then full grown. I am quite sure no cottager will repent buying a couple of rabbits; and if he once feels the comfort of having one for dinner once or twice a week, he will never give them up. C. M. A.

THE PHYSIC GARDEN.

By a Physician.

POLYGALEÆ.—Of this order there are but two species indigenous to England; and, as their medicinal properties are very similar, I shall treat of them under one head, and refer my reader to them for information. I may, however, mention that the qualities contained in our English plants are possessed to a much greater degree by a North American species—the famous Senega, or Snake Root, formerly so celebrated as an antidote to the bite of the rattlesnake, being used both externally and internally, for which purpose it is still used by the Senegaro Indians.

The Rattany Root, of Chili, is part of another member of this order, and is a well-known astringent, as well as a powerful tonic medicine.

MILKWORT (*Polygala vulgaris L.*, and *Polygala amara L.*).—Although it has been doubted by some whether the latter species is strictly English, yet as it is common in many parts of France and Germany, it may fairly come under our consideration as a plant capable of cultivation in England. The only differ ence, in a medicinal point of view, between the two species is, that the latter is rather more powerful and efficacious than the former; and, with this prefatory remark, I shall now speak of them as but one plant.

The milkwort, like all the other individuals of this order, has a bitter astringent taste in its leaves, which property is much more fully developed in its roots. It is the latter part of the plant, consequently, which is used in medicine, and an infusion of it is a safe cathartic, as well as of considerable use for a cough proceeding from cold, since it promotes expectoration. It is also employed in cases of pleurisy, in consumption, and in malignant fevers, with great benefit. The powder of the root is given in doses of from half a drachm to a drachm; or a pint and a half of water, with an ounce of it therein, may be boiled down to a pint, and drank with milk.

CAROPHYLLACEÆ.—Of so little use are any of these plants, that it may be wondered why the order is retained in the medical list. For the most part, they are remarkable for their insipidity and general inactivity; and though some of them had useful properties attributed to them, it is now believed that they had no real claim to any such virtues. In this list I may mention the soapwort (*Saponaria officinalis L.*), the campion (*Lychnis dioica L.*), and the chickweed (*Stellaria media*), all of which are mentioned by the old herbalists. I may observe in passing, that the last plant may be boiled for the table like spinach.

The only species to which I shall refer is the CLOVE PINK (*Dianthus caryophyllus L.*), which is well known, and in the highest favour for its beauty and rich spicy odour. It has been cultivated in Europe from time immemorial, and is the source from whence have been derived all the beautiful varieties of carnations and picotees. Like all its congeners, it is quite destitute of any real medical value, though it is still used in physic on account of the agreeable colour and flavour which it imparts. The flowers are for this purpose made into a syrup, which, from its harmless nature, forms a very desirable modifier of the nauseous mixtures which we sometimes are obliged to take.

Formerly, this syrup was supposed to be able to raise the spirits, or, in the language of the time, "to warme and comforte the harte;" it was also recommended in various nervous and spasmodic affections, and in malignant fevers; but its medical use is now quite obsolete, except as a flavouring and colouring agent.

LINEÆ.—The claims of the plants in this order to our notice are not very important, for the use that may be made of them in curing any of the "ills that flesh is heir to," while at the same time some of the species are of immense importance to the world, from the extraordinary tenacity of their fibres, which renders them suitable for being manufactured into coarse cloths and thread, but especially into that valuable fabric (which takes its name from the plant) *linen.*

There are but two species of any medical interest, both of which are natives of England; and their only common quality is the presence of oil and mucilage in their seeds, which renders them consequently emollient.

BLUE FLAX (*Linum usitatissimum L.*).—This is the plant, whose fibres, commonly known as *flax*, have been used from time immemorial in the manufacture of cloth and thread. The substance which we call *tow*, is the short fibres of the same plant; those which are too short for being woven into linen; and this latter material when scraped and thus torn up constitutes *lint*—a very important agent to the surgeon.

An infusion of the seeds, well known as *linseed tea*, is of great use in all cases where there is any irritation of the mucous membranes: as in violent diarrhœa, and in affections of the lungs, when it acts as a demulcent, and allays the irritation. The seeds, when bruised and moistened with boiling water, form a most valuable emollient poultice; and according to Dr. Lindley, the oil mixed with lime-water has been a favourite application for burns.

Much more do I feel disposed to say regarding the many useful purposes to which this pretty little plant is turned, but I must curb my inclination to be communicative upon that which does not materially affect the object of my present writing, and I therefore pass on to the notice of the other species.

WHITE FLAX (*Linum catharticum L.*).—Though now almost obsolete, this plant was formerly in considerable repute as a cure for rheumatism; and country people still gather it for this purpose. In obstinate cases of this kind, Dr. Withering found a dose of two drachms of the dried herb very useful; or an infusion of a handful of the green plant will have a similar effect. Its taste is bitter, and its action powerfully, though not dangerously, cathartic. It is, however, somewhat uncertain in its operation.

The plant may be commonly met with in pastures in England, and also in other parts of Europe; and in such profusion does it grow about Versailles, as to cause the fields (small as are its blossoms) to appear quite white with them.

OUR VILLAGE WALKS.

(No. 23.)

THERE is one particular spot, which I pass almost daily, where I am sure to hear the joyous, thrilling notes of the lark. It is a large open piece of arable land, lying high and dry, and there is a freshness and buoyancy in the unconfined air which the lark seems to relish as much as I do myself; and I often pause to listen to his joyous song, and try to discern his little fluttering form suspended in the air; but I can seldom see him. He is soon lost in clouds and space, and his warbling notes alone mark his soaring flight. What energy, what vivacity, what *enthusiasm* there is in the lark's song! It seems to grow fuller and richer as he rises higher and higher, as if the clear, delicious air inspired him the more he tastes it in its lofty purity, and made him rejoice in ascending beyond the fogs and vapours of the earth. Does it not remind us, as we listen to his voice, of the gladness that swells the Christian's heart, as his hopes rise higher and higher, beyond "the things on the earth," to those things that are above—and brighten as they rise? Buoyant and sportive as is the soaring wind, melodious as is the lively lay, yet there is a sweeter, holier song for man to sing—a bolder, higher, grander flight for him. The believer is borne, amid "the changes and chances" of the world, "on eagles' wings;" and the "new song" that is set to the music of Mount Zion, has no parallel on earth. It is a song begun, indeed, among the clouds of our tempest-tossed life, but that will never cease throughout a glorious eternity. Has not the merry lark a word for us, as the gushings of his song reach our listening ear? He tells us, that we too ought to make melody in our hearts for all the goodness of God; he pours forth his praise for lesser mercies—while the voice of man is mute. Does not the unceasing warble of this little bird condemn the disregard we show to our own high calling?

The perpetual cawing of my favourite rooks, unmusical and monotonous as it is, has now again begun, and will cease no more till their young can fly. I rejoice to hear their hoarse voices, and am sorry when they take their winter leave, although they continually visit us in the daytime even then. I love to hear them the first thing in the morning, and the last thing at night; to watch them battling with the wind, or careering round the trees, or fighting and disputing with each other. If I were observant, as many people are, I might gain some hints from their manners and customs; but I have no gift that way. My father, who noticed everything, when residing in the neighbourhood of the Yorkshire moors, soon learned to discern the changes of the weather by the habits of his rooks. However threatening might be the aspect of the day, if the rooks went off in a body to feed on the moors all was safe—no rain ever fell. If, on the contrary, the brightest weather failed to tempt them from the park, a change would surely take place—rain came in a very few hours. My father said he never knew these signs to fail; so much so, that he looked as regularly to the rooks as to the barometer when he rose in the morning; and if they ever differed in opinion the rooks were right.

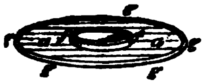
The noise of a rookery associates itself remarkably in the mind, with times and places. Most other country sounds are heard so generally, that they do not connect themselves closely with particular ideas; but rooks are not heard *every* where, and they do frequently carry us away in thought to the distant and the past. There is, or used to be, a settlement of rooks in Bath, in the garden of a residence sheltered by a few tall trees; and I shall never forget the feelings of delight with which I used to pace beneath the high brick wall, listening to their loud noise, and trying to fancy myself *at home*, under our own beech-trees, till the rattle of a carriage broke the charm!

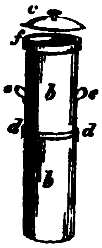
Since the snow has melted, the mosses seem particularly bright and beautiful, more so than I think I ever saw them. I observe among the woods beds of feathery moss, so green and lively, that it quite refreshes the eye accustomed so long to the barrenness of a wintry scene. I do not understand any of the varieties of moss, but there is one particular kind so delicate and spray-like, that it reminds me of fern in the shape of what may be called its leaves. The formation of moss consists in small cells, which drink up the rain and dew; this keeps it perpetually moist. The earth is never parched beneath a carpet of moss, and the roots of trees are kept cool and damp by its friendly aid. We often admire the silky green coating that inwraps the lower part of their rugged stems, but we do not, perhaps, remember how useful, as well as beautiful it is. Mosses are the first approach to vegetation on rocky shores, from which the sea has totally receded; and they appear in a short time upon the islands that have occasionally been thrown up from the bosom of the ocean—thus wonderfully displaying the latent fertility of the earth, although it has been covered with the deep sea ever since the command to "bring forth grass, the herb yielding seed after his kind, and the fruit-tree yielding fruit after his kind," was given by God.

There is an unobtrusiveness in moss that causes us to neglect it, yet how much it embellishes the woods, the copse, the sequestered pathway; and how softly, yet brightly green it is when the early spring sunbeams glance cheerily among the trees, and dart into the cold, damp woods that have so long remained almost in darkness!

We pass carelessly by a mossy bank, or over mossy ground, we feel it velvetty and pleasant to the feet, but we do not pause to examine it closely, to admire the beautiful cuplike form of one variety, or the leafy richness of another. There are so many species of this beautiful portion of vegetation, that they might afford unceasing interest and delight. That species, called the common club-moss, which is frequently found in England, clothes vast districts in Lapland, and is the food of the gentle, serviceable Rein-deer, that almost friend of man. In those dreary regions, covered with almost perpetual snow, this valuable moss lies safely beneath it, preserved alive when all other vegetation ceases, to be the support of the few animals that inhabit those bleak lands. When the snow is scratched away by the instinct of the reindeer, his food is green and nourishing, although frosts prevail so strongly that man's breath freezes on his lips. What a wonderful, what a gracious provision for the wants of the dumb creation! Whenever we meet with the interesting club-moss, then let us view it with peculiar regard,—let us think of the desolate lands it overspreads and benefits,—let us think of the animal creation, guided by the Creator's hand, seeking it below the frozen surface of deep snows; and let it cover us with shame to think that while they, the beasts that perish, "seek their meat *from God*," *we*, blessed with the gift of reason, too often seek it from ourselves! How few of us there are that wait upon Him to give us "our daily bread!"

APPARATUS FOR WARMING A GREENHOUSE.



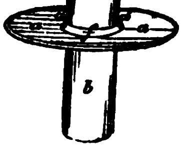


This apparatus is formed of a

- *a* Circular cast iron plate *a*, 2 feet diameter, with a circular hole in the centre of 8 inches diameter.
- *b* Fuel-pipe, of cast iron, 4 feet long, and 7 inches diameter at top; it is a very little larger at the bottom to allow coke to slide down.
- *c* Its lid, fitting into a sand groove.

When the two are put together, *b* is let down by the handles *e*, through the hole in the plate *a*. Flange *d* fits into a sand groove *f*, which is filled with silver sand. This is to allow of expansion, without cracking the cast iron.

On the top surface of the outer edge of plate *a*, a half-inch fillet (*g*) is cast with the plate; for the purpose of holding sand round the edge of the plate. The plate *a* is not *bedded* in the brick-work, but simply *rests upon it*. In the 12-inch paving-tiles, with which the brick-work is covered, a circular hole is cut of *an inch larger diameter* than the plate; and this cavity, or groove, is filled with sand all round, as high as the top of the fillet, so that the edge of the plate is buried in sand, and the plate has liberty to expand or contract to any extent.



If bottom-heat is not required, the annexed cut would be complete in itself, without the copper boiler; but, having a tank previously, I added the copper boiler, as shewn in *fig.* 4. The same fire will do for one or both: care being taken that both fuel-pipe and boiler are *directly over the furnace-bars.* My boiler holds about 3 *quarts*, or rather less. It is a great mistake to suppose that a *large* boiler is required. It is a loss of fuel to heat more water than the diameter of the flow-pipe will allow to go into circulation at the same time. In mine, warmth is perceptible as soon as the fire is lighted. My greenhouse is 18 by 15 feet; and being built with its back adjoining a sitting-room, I am obliged to adopt the following arrangement, which others would vary according to circumstances.

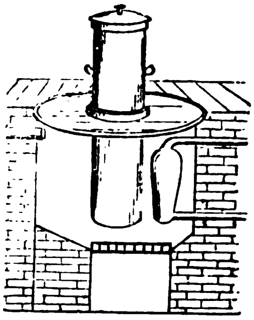


Fig. 4.

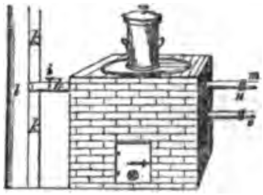


Fig. 5.

Fig. 5 represents the whole complete, put together, and set in brickwork:—*m* is the flow-pipe conveying the hot water from the boiler; *n* is the brass union-joint connecting it with the tank in the greenhouse; *o* is the return-pipe, bringing the water back from the tank; *h* is the flue, through the wall *k*, into the chimney *l*; and *i* is a damper.

As soon as the fire is lighted, the heated air ascends from the plate to a low ceiling (*p*, in fig. 6), in a porch at the north end of the greenhouse, into which there is a door (*r*) from the porch. Over this glass door a head-light of one pane (*s*) swings upon pivots, and lets the warm air into the greenhouse. Under the threshold of this door is a cast iron grating, (*t*) communicating with an air drain under the floor of the house. This drain has a regular *fall* of several inches: thus a circulation of warm air is kept up on the Polmaise principle.

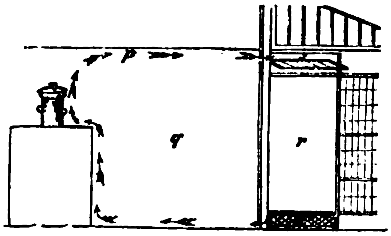


Fig. 6.

Very little fuel is consumed: less than a bushel of coke in 24 hours, at a cost of about 4d. It requires very little attention; when the fuel-pipe is filled to the top with coke, and the lid put on, the contents of the pipe *b* will last from 12 to 24 hours without replenishing: according to the heat required, and the draught given by means of the damper and ventilator. The flue is a four-inch iron pipe, with a nicely-made damper fitted into it. There is a double door to the furnace and ash-pit. In the outer door is a circular brass ventilator or regulator. The short iron pipe-flue *must pass into a brick chimney—this is indispensable.* By means of the damper and ventilator, the *nicest* possible regulation of draught may be maintained. The atmosphere of the house is never quiescent: an undulation of the vine-leaves is always perceptible. I have now tried it for two years; it has never failed to do all that I wish. The fire never goes out, night or day (if the coke is broken small enough), unless designedly put out, or through any gross mismanagement, when under the care of one who does not understand its principle.

The coke is broken into pieces of a size varying from that of a hazel-nut to a walnut; the residue is sifted, and also burned; the very smallest dust only being thrown away.

I do not keep a regular entry of my self-registering thermometer; but, during this severe winter, my lowest temperatures have been about the following:—Greenhouse, night temperature, 40° or 45° to 50° or 55°. Among pines, over tank, night, 50° or 55° to 60°—never below 50°.

Temperature, on floor level, 40° or 45°, generally.

The apparatus is perfectly clean, free from dust, and without the smallest escape of coke-gas. The whole can be taken down in five minutes, without the aid of any workman, cleaned, and replaced; for when once the brick-work is complete, no unsetting or re-setting is required. The little copper boiler is made of the thickest metal that can be procured. By using copper, instead of iron, there is never any sediment in the pipes or tank. I have some shallow zinc pans, which I place on plate *a* at pleasure, for evaporation. I have also means of preserving sufficient moisture by the tank in the house.

This is a simple and effectual plan for procuring the Polmaise circulation of warm air, and the tank circulation of warm water, by means of one and the same fire. Either of them can be shut off at pleasure when not required. It can never fail. I had a model made in wood, under my own direction, which I then sent to the foundry to be cast.

You will like to have a little guidance as to the first expense:—

The cast-iron plate *a*, with fuel-pipe *b*, cover, flange, handles, &c., complete, as shewn	3	12	0
Copper boiler, with branches and unions	1	15	0
	£5	7	0

The furnace-bars and ash-pit door I had by me before. I have not included the brick-work—the interior of which is lined with Ramsay's fire-bricks.

Of course, for any house of larger dimensions than mine, an apparatus upon a proportionately larger scale would be required. If I were to make a second, and did not require a boiler, &c., for hot water, I should think of having the casting in a dome-shape instead of a flat plate, which would give a larger warming surface of iron: such, as I believe, is usually known as the *cockle*-shape; but this would be matter of experiment.

So accurately does this work, that if the damper is turned about the 32nd part of an inch one way or the other, the effect upon the draught is perceptible immediately. C. P.

CULTURE OF CAMELLIAS.

THESE beautiful hardy greenhouse plants are the greatest ornament of the conservatory during the months of April and May; with flowers as handsome and as various in colours as the rose, they have the advantage over that justly esteemed flower in possessing a splendid foliage, handsome and glossy at all times of the year. We have given a pretty considerable list of the best kinds, many of which will be new to the generality of our readers. The variegated ones are more numerous than the self-coloured, but are selected as being distinct and good shaped flowers. We cannot let this list pass from our hands without giving what we conceive to be the essential points of good culture of these universally esteemed flowers.

HOUSE TO GROW THEM IN.—Like all large families of plants, the Camellia does best in a house to itself. The reason is, because at the season when they make their annual growth, and form their flower-buds for the succeeding year, they require a higher temperature, and a greater amount of atmospheric moisture and shade than any other greenhouse plants, with, perhaps, the single exception of the citrus (orange) tribe. As these two families require a similar treatment in that respect, they may be grown together in the same house with great propriety and benefit.

COMPOST.—The compost we have found them to grow and flower best in, is light fibrous loam, of a brown colour; such as may be obtained from a pasture on the banks of a river, or even from the sides of hills or uplands, where the soil is clear of stones or clay. The top spit, four or five inches thick, is the best. Take the grassy turf along with it, and lay it up for twelve months previously to using, chopping and turning it over frequently. The other article is sandy peat, taken from a moor, where the common heath thrives vigorously. This requires breaking up in a similar manner to the loam, but not for so long a time. These two soils mixed together, in equal parts, and the rougher lumps picked out (not sifted), will grow the camellias satisfactorily. If the soils appear to be poor, an eighth part of leaf-mould, or very rotten dung, may be added; and also, if not of a sandy nature, add as much river sand as will make it so.

DRAINAGE.—The camellia has a soft white fleshy root when in its young state, and if the pots are not well drained, these roots in autumn and winter will be apt to canker and perish. No plants suffer more from badly drained pots than these, therefore it is of the greatest importance to drain effectually. Broken garden pots make the best drainage; place a large piece over the hole at the bottom of the pot, propped up by another piece, to allow the superfluous water readily to escape; over that place some smaller ones, and over the last a covering of pieces no larger than garden peas, with the small dust sifted out. Upon this drainage put either a thin layer of moss or some of the rough pieces of fibrous loam or peat picked out at the turning times. These may be lesser or larger according to the size of the plants.

POTTING.—The best season for potting is the month of August. We are aware there is a difference of opinion amongst cultivators as to the best time for this important operation, some preferring the spring, just after the plants have bloomed. We will just reason a little upon this point. The camellia is an evergreen, and requires the greatest amount of support and food at the time it makes its shoots and forms its flower-buds. Now, if it is potted in spring, just before it begins to grow, the operation of potting disarranges the roots that may be alive, and disarranges also the soil; so that before these two agents (the mouths and the food) can act, the plant is growing upon, and exhausting, the small store of food reserved in itself; consequently, it cannot thrive so much as it would have done if the roots and soil had been in a state to assist the growth. On the other hand, if the potting had been performed as we say, in August, the roots would be growing, increasing, and gathering up a store of food that would cause the plant to start into growth in perfect health and vigour in the spring. All good gardeners remove hardy evergreens in the autumn of the year, and for the same reason, that they may put forth new roots directly, and be ready to sustain the growth of the following year. We might lengthen out these remarks much, but we think we have said enough to prove our case, that autumn is the best season for potting camellias, as well as for removing hollies, aucubas, and other evergreens.

WATERING.—The greatest quantity of water is required whilst the plants are growing. They can then hardly have too much if the drainage is all right. After they have formed their buds, and up to the growing time again, just keep the soil moist, and no more. Take care, however, that the inside of the ball is wet, as well as the top. Large pots will require occasional examination; stir the surface sufficiently deep to see that the interior is moist. If dry, thrust a pointed stick here and there into the soil, leaving the holes open; then give a good watering that will sink through and thoroughly moisten the whole. At the time of growing, throw abundance of water down upon the paths, borders, and against the walls, to create a moist atmosphere.

HEAT.—These plants are very hardy; so much so, that in the south they will live through our ordinary winters in the open air; but seldom flower well, because our late spring frosts nip the bloom in the bud. In the greenhouse, if the frost is just kept out, the heat will be sufficient. Give as much air as possible on all favourable occasions. The time when a little heat and less air will be desirable, is just after the bloom is over till the buds are formed. This happens at a season (May and June) when the natural heat out of doors is so much increased that very little artificial heat will be necessary.

TURNING OUT.—As soon as the buds are fairly formed, the plants may be set out of doors in a place sheltered from the noonday sun and west winds. Place them upon a thick stratum of rough coal-ashes, to prevent worms getting into the pots. Syringe them here of an evening after a hot sunny day, and give a moderate supply of water. Here they may remain till the cool nights warn us of the approach of frost, when the pots may be cleaned, the surface stirred, and all made neat and tidy. Then put them into the house, and if all be well you will have a prospect of abundance of bloom for the next year.

T. APPLEBY.

EXTRACTS FROM CORRESPONDENCE.

GOOSEBERRY CATERPILLARS, TO DESTROY.—I send you a receipt for cleaning gooseberry bushes from caterpillars, which I have used with success for more than 40 years.

Put into a boiler as many bucketsful of water as you require (one bucketful will do for 20 trees); add 1 lb. of soft soap, and 1 oz. of ground black pepper for each bucket. Let the water boil, and then put out the fire, and let it stand till cool. A bunch of twigs from the birch, about twice the size of an ordinary birch-rod, must be used to beat up the preparation, and to dash it over the bushes. If possible, every leaf should get some, to effect which, the Lancashire, or goblet, way of training is most favourable. Once perhaps in five years they may require a second dressing, a fortnight or three weeks after the first. The time for applying it is generally about the middle of April. When the first set of leaves are out, look carefully over the bushes, and you will see here and there a leaf with a round hole in it, from the size of a mustard seed to that of a split-pea. On looking at the other side of the leaf you will see the young brood, four or five in number, about a tenth of an inch long. Choose a day for the work when it is likely to keep fair until the lather is dry.—John Beever, Coniston, Ambleside.

Balsam Culture.—I saw in The Cottage Gardener, some time since, a method to grow balsams, but as I believe many do not grow them on account of the supposed trouble, I send a very simple method which I have practised for years. Sow the seeds in heat, about the middle of April; as soon as the seedlings are up, remove them to a cooler place. When the seed leaves are well expanded, pot them singly into the pots you wish to bloom in. If large plants are required, put them into 12's. Set them in a frame or pit, give but very little water until they begin to grow freely, then water plentifully, and give them manure-water twice a week. Shut up the pit or frame early, according to the day, with 90° of heat; water over head at shutting-up time. Give abundance of air in the early part of every day. In six weeks from the potting they will be full-grown, and by the middle of July be in full bloom, as fine as any person may wish. I had some here last year that were admired by all that saw them. Some said they never saw finer, though they keep a thoroughly practical gardener, and have pits and houses. No bottom-heat is required, or any artificial heat of any kind, only solar heat. I place mine on a lattice-stage, *flat* in a pit that I winter bedding-out things in.—Joseph Hunt, *Gardener to W. D. C. Cooper, Esq., Feddington Manor, Beds.*

TO CORRESPONDENTS.

⁂ We request that no one will write to the departmental writers of The Cottage Gardener. It gives them unjustifiable trouble and expense; and we also request our coadjutors *under no circumstances* to reply to such private communications.

Planting out large Greenhouse Plants (*A Flower Lover from Childhood*).—Your plan of planting out these in summer, and repotting them for winter housing, cutting the roots round by degrees, and watering as directed by Mr. Beaton, without cutting them down, is very feasible, and we will ask this master in floriculture to write upon the subject early in May, before the time for trying the plan arrives. We cannot tell the name of your *Mahonia* or *Berberis* unless you send us a specimen in flower.

Promoting the Decay of Dung (*Inquirer*).—You have mixed your dry littery stable manure with fresh pig manure, and wish to know if there is any method whereby you can make it fit for present use, especially for early celery? There is no better plan than that which you have adopted. Turn it over once a fortnight, mixing the dry well with the moist parts, and where any parts are particularly dry, throwing over them a litttle water, or, in preference, the house slops. When you require the manure, be not afraid to use it, though not fully decayed. Half-decomposed dung is more economical and nearly as effectual as quite decayed.

Arnott's Stove for Conservatory (*H. Winkworth*).—If you had consulted our indexes, you would have found that we deprecate, and the reasons why we deprecate, the introduction of any iron stove into a plant house. Under the circumstances of the best construction and management they give out or form gases injurious to the plants. A conservatory ten feet square, communicating with your drawing-room, is small; and we would recommend an ornamental tank or vase of some kind, that you could fill with boiling water when the temperature rendered it necessary.

Cow-tree, Bread-fruit, and Yam (*A Cottager*).—This is the *Galactoden utile* of Humboldt. It is a native of the Caraccas, receiving its names from producing a wholesome milky juice, given by the natives to their children. You can see a specimen growing in one of the hothouses at the Kew Gardens. At the same richly inhabited and excellently managed gardens you will also see the bread-fruit-tree, *Artocarpus incisa*. The *Dioscorea sativa*, or yam, is a tuberous-rooted plant, cultivated in the West Indies for its potato-like tubers. Not one of the three could be grown here in the open ground, for they are all natives of tropical climates.

Flowers for Beds (*A Subscriber*).—It is too late now to plant anything in the flower beds that are to be planted with geraniums and verbenas, &c., in the summer, unless you had some of the hardy annuals sown last autumn, and some of them may yet be transplanted. We should as likely deceive you as not if we said what flower or colour ought to be used for a bed, or sets of beds, unless we were on the spot; therefore, we decline all such answers. Watch what is, and what will be, said on bedding plants, and make your selections accordingly. For the rustic tub in the centre of your beds use, for a hanging-down plant, the common moneywort, *Lysimachia nummularia*.

Mistletoe.—The seeds of this plant are now over for this season; and we cannot supply any more of them now.

Sprue (*B. M. J.*).—This is only the market name for the very small heads of asparagus. The end of March and early in April are good times for sowing *salsafy*.

Winter Aconite Seedlings (*Flora*).—These will be three or four years before they bloom, but much depends on the treatment. They are not worth the trouble and expense of rearing from seeds, as we can buy their flowering roots so much cheaper.

White Forget-me-not (*Ibid*).—Can any reader tell our correspondent where to procure this variety? "She has been unsuccessful in her attempts to find it."

Cyclamen Planting (*Ibid*).—All the cyclamens must be planted "*in* the soil," not *on* it. If your *C. coum* is for a pot, plant the root or tuber so that the crown of it is just level with the surface of the soil.

Erratum.—In p. 323, col. 1, line 41 from top, insert *none* for *some*.

Striking Verbenas and Petunias Under Bell-glasses (*C. M.*).—If the bell-glasses are conical-shaped, which we consider the best, little wiping off the damp collected will be necessary, as it will run down the sides of the glass, without dropping on, and thus causing the cuttings to damp. If the glasses are flat-headed, wiping may be necessary at times; but we should think that before this meets your eye they will be altogether unnecessary. If not, we would advise you to take them off altogether, or partly at night, and put them on in the morning. The reasons for this we must defer. You may consider yourself fortunate in possessing bell-glasses for such things. If, as you say, you have otherwise followed the instructions in The Cottage Gardener, we expect the cuttings, before you see this, will be almost lifting up the glasses, as so many nightcaps which they can do without.

Greenhouse (*J. G. P. Everton*).—This is not heated, and the sun does not reach it until April. With the assistance of a pit, the common run of greenhouse plants would *flower* nicely in such a house all the summer. Half-yearly creepers, such as Passiflora cœrulea, Cobœa scandens, Eccremocarpus scaber, &c., would also flourish, even if partly cut down in winter. Mosses and ferns, of which you are fond, would also do, a list of which you will find in the preceding volume, and, if not quite to your mind, we are quite sure that our friend, Mr. Appleby, would farther oblige you Ferns do not have what is commonly called seeds; but you may propagate them by sowing the spore dust, which you can collect from the back and the sides of the leaves. Scatter the spores on fine, or even lumpy soil, and then set the pots or boxes in a warm, moist, shady situation, where you can dispense with watering on the surface.

Fuchsia Fulgens (*Flora*).—The flowers dropping is the consequence not so much of setting the plant in the dining-room, though a more airy part would suit it better, as of the recent *shifting* it has received. When the roots begin to fill the fresh soil, the dropping will cease.

Mandevilla Suaveolens (*E. L. T.*).—We think that the plan recommended at page 303 is, at least, worth a trial. It is a pity you cannot heat your greenhouse, for then there would be no difficulty. At present, we suppose you have not much in this house in winter; and there, too, we would give it a fair trial. Thus:—procure a strong plant, such as recommended by Mr. Fish lately, when treating on conservatory climbers; turn it out into good compost, against a pillar in the middle of the house, in the month of May or June; encourage it to grow until the end of August; let the soil then become dry, and use every means to harden the wood. Cover the soil at the approach of winter with dry moss; stick some of it all along the stems of your plant, and tie all up in a neat wrapper of calico, and do not uncover until the middle of March, and we think you will be rewarded.

Gum Cistus (*Ibid*).—If you keep them in the pots they should have another shift into a size larger.

Kalmia (*Idem*).—Would you send a leaf? We cannot see what is the matter; unless they have had bad soil, and improper water.

Tree-Violets (*Idem*).—This does not *tree* naturally; the kind has been advertised in our columns; we must not recommend dealers.

Pines in Vinery (*R. C.*).—You can ripen pines tolerably well in a tan-pit, in the centre of your vinery, if you confine your vines to the rafter. They can be bought of almost any respectable nurseryman. This question was overlooked, or it should have been answered before.

Labels (*W. A. V.*).—We prefer zinc labels, written upon with the ink for which a recipe is given at pp. 206 and 271 of our first volume. We can state, from long experience, that no exposure to weather will remove the writing.

Pullet Slipping her Eggs (*H. L. J.*).—This is not at all uncommon. See what is said at page 283; it probably arises from similar causes, or some of them, and we advise the same treatment. The fowls you bought, white speckled with black, with an unusual quantity of feathers about the throat, and a tuft of feathers springing, like a beard, beneath each side of the lower mandible, or chin, are a variety of the *Siberian fowl*.

Monthly Calendar (*A Cot.*).—The letters *e* and *b*, in the calendars at the end of each month, mean that the operation is to be done at the *end* or *beginning* of the month, as the case may be. The *index* can be had through any bookseller, or by sending three penny postage stamps direct to our Office, 2, Amen-corner, Paternoster-row.

Soot Mildew (*M. D. P.*).—We cannot suggest a remedy unless we know where it occurs.

Name of Caterpillar (*Sabrina*).—The greenish-brown caterpillar, found by you near the roots of your carnations, in the open border, is the larva of the *Agrotis segetum*, or common Dart Moth This caterpillar is very destructive to anemones, dahlia-roots, and even to young cabbage-plants and turnips.

Piping (*Reader and Subscriber, and T. D. P.*).—The best piping you can each of you use for your liquid manure is that made of gutta percha. One-inch in diameter may be had for 9d. per foot.

Datura Fastuosa (*G. E. V.*).—This requires to be raised from seeds in the spring, and treated as a tender annual up to the end of May; and then to be planted out in rich soil on a sunny border, and well supplied with water. In a good season this species and *D. Ceratocaulon* flower handsomely in the autumn, but none of them are much cultivated.

Canna Indica (*Ibid*).—You will find no difficulty in flowering this in the open borders so near Malvern; and, with a slight protection, it will live out the winter for many years. It likes a rich loamy soil. Thanks for writing on one side of the paper only.

Blue Pentstemon (*T. W.*).—There are several bluish pentstemons, and *speciosum* is the worst of them to grow, and should be renewed often from seeds, as the old plants are very often apt to die with us. A light, deep, sandy loam, on a dry bottom, and in a sheltered situation is the best for it.

Franciscea Hydrangeœformis (*Ibid*).—This is a beautiful stove-plant, with large heads of bluish lilac flowers.

Tacsonia Pinnatistipula (*Ibid*).—This old plant is one of the finest of greenhouse climbers; but, unfortunately, it does not succeed in one place out of ten.

Leschenaultia (*Ibid*).—*L. formosa* is the best of them.

Jasminum Sambar (*Ibid*).—The double variety of the jesmine, called *Sumbae* is a stove-plant of the very easiest culture; and, although a climber, is best treated as a pot-bush.

Village Horticultural Society (*Ibid*).—Buy the "History of the Pytchley Horticultural Society." By the Rev. A. Brown.

Vase Plant (*W. H.*).—We know of no plant that could "be grown in a composition vase raised so high that it could not be watered." You might have the model of an aloe or yucca formed of sheet lead and painted, but we do not like such deceptions.

Stagnant Pond Water (*A Flower Lover from Childhood*).—You ask how our condemnation, at p. 59, of this, though "loaded with vegetable extract," is reconcilable with the value of liquid manure? The compounds are quite dissimilar; stagnant pond water is thick, and impregnated with carburretted hydrogen; liquid manure ought to be quite clear, and its most active constituent is ammonia.

Rose Budding (*Ibid*).—Even Indian rubber rings, such as are used to enclose papers, are good for bandages in this operation; therefore we can readily believe you are quite correct when you say:—"I was told by a most successful amateur budder of roses that no bandage for the purpose answered so well as narrow slips of diacholon plaister. I have tried it myself with great success; it keeps out air and wet, and is expeditiously fastened by the warmth of the finger, and as easily loosened and refastened again, till all the diacholon is worn off, by which time it may be removed altogether."

Double Yellow Berberry (*Y. Z.*).—Unless we see a sprig of it when blossoming we cannot tell its name.

Magnolia (*R. B. R.*).—We never heard of a *Magnolia gloriosa*; you mean, probably, *M. grandiflora*. At any rate your species may be propagated by layering its shoots of last year's growth before the end of May; tongue the layers as you do those of carnations, and they will succeed better if allowed to remain for two years before being cut away from the parent tree. When it is so separated do it in mild, moist weather in April. Take care that you do not increase any but a sort that flowers freely, for some bloom very shily. Whatever you require you may safely order from any of those who advertise in our columns.

Yellowly's Fork (*I. K.*).—You had better have one made, and if you will consult the drawing and directions given at p. 289 of our first volume, you will be able to give any blacksmith the necessary directions.

Tobacco Water (*A Cheshire Rector*).—In making this you need only steep the tobacco in boiling water, and then soap-suds are added. (See vol. i., p. 272.)

Charred Sods (*Ibid*).—You need not fear these being burnt too much, if the heap only goes smouldering on. Do not attempt to extinguish the fire but let it burn itself out. In using charred refuse as a manure, the most economical mode of using it is by stirring a little into the bottom of each drill.

Sea-Kale Cutting (*Ibid*).—You may cut all the shoots without injuring the stools. Keep the pots on, but not the forcing material; fresh shoots will soon appear, and these must be gradually hardened by exposure to the light and air, and left to prepare the plant for forcing next year.

Deposit from Well Water (*W. L.*).—This deposit is full of a carbonate, probably carbonate of lime (chalk), as you may prove by the effervescence or bubbling caused by pouring upon it any acid, even vinegar. We cannot have it analysed for less than a guinea.

Cork (*A Subscriber*).—You may buy this in large flakes, such as would do for making hives, of the London cork merchants.

Taylor's Amateur's Box Hive (*Gyra*).—This is a very good one for a beginner. We advise your commencing with it, for it will afford you both profit and amusement. A first May swarm is the only way of stocking it properly, but you *must* put in guide combs. Very small pieces will answer; surely you can procure them. If you do not use Taylor's hive, get Payne's improved cottage hive, figured in page 259, vol. i., of The Cottage Gardener.

Cuttings in Windows (*J. W. Blackett*).—Doubtless you can strike calceolarias and many other things for the flower garden in the room with the French doors. We, too, admire a spirit of independence, if not carried too far.

India Rubber Plant (*Ibid*).—This, after being "a companion of eleven years," we can fully enter into your feelings in hesitating to part with it; we should prize it more than ever for its associations. You can cut it to any height you please, and as often as you please without in the least hurting it, and the top, if a yard or two long, will strike roots as freely as a willow, if you strike it in a pot of earth or sand in the same room. It is the easiest plant to deal with in the whole vegetable kingdom if you keep the frost from it. But having been a companion for eleven years, you must be more able than we are to say how best to manage it in a "drawing-room." Pray tell us all about it, or rather ask Mrs. B. to do so.

Seeking Advice (*Ibid*).—As long as our readers choose rather to pay letters to ask questions that have been answered repeatedly, than to take the trouble of referring to the indexes, we choose to go to the trouble and expense of providing the proper answers, rather than that any of our subscribers should think us indifferent to their calls. But, after all, we cannot expect that the great number of new readers we have brought on the stage should learn to act their parts properly all at once. It will take a year or two to go through their rehearsals.

Double Polyanthuses (*A Young Amateur*).—There is no way known, either for making double flowers or for raising permanently dwarf plants. *Cultivation can alone effect these objects.

Fleur de Luce (*Hester S.*).—The botanical name for this is *Iris*. Sow the seeds in the reserve garden. Put round your *hot-bed* deficient in heat a good lining of hot fermenting dung; and renew this, removing the old lining, as often as needed.

Bees (*Ibid*).—Your bees have died for want of feeding. This is the time when they especially require food, if at all. Their store is exhausted, and the flowers as yet do not yield more. Your first floor is not too high for you to have a hive in its window, but they would do better on the ground floor.

Calampelis (Eccremocarpus) scabra (*Un Lecteur*).—You may sow the seeds of this fine climber any time between this and the end of April; they do not require bottom-heat, but if you can spare the room they will vegetate sooner in bottom-heat. The seedlings will not stand much heat or confinement after they are up.

Vegetable Marrow (*Ibid*).—Sow the seeds before the end of this month in peat, and plant out on a rich piece of ground when the May frosts are over. Ample directions have been given already about them.

Scarlet Geraniums (*One who values The Cottage Gardener*)—Your sickly looking plants, potted last autumn, and kept till lately in a wine-cellar, should now be cut down rather close, and the cuttings will soon root, and be available for second planting next summer; the old plants need not be potted, but planted from the present pots. Those struck last autumn should now be potted off singly. To know when cuttings are rooted, turn out the ball; unless they are in too great heat, you may also know by seeing them beginning to grow. You will have seen that Mr. Beaton has declined the responsibility of saying how to plant beds; he only gives the colour and height of the proper flowers.

Passion Flower (*Lex. Jun.*).—We cannot make out whether your passion flower is outside or inside the vinery. We would not stop this season at all, but would train it back again until the top reached the pot: this will be equivalent to "stopping," and still enable you to get more flowers. Keep training backwards and forwards, or up and down, or in any fancy way, and you will find young shoots will issue from the neighbourhood of every bend, and will flower all the season; the half-peck pot is large enough, if you half plunge it in the earth, the roots will run through the bottom, and help themselves; and at the end of September, you can cut them below the pot without danger; but why not plant it out at once?

Anemones (*Ibid*).—You may transplant the anemones from your friend's bed now, and water them well; but this is only allowable in a case of necessity, like yours. If the plants are seedlings coming up for the first time you will not injure them at all.

Avenue a Quarter of a Mile Long (*T. W.*).—The Deodar cedar is by far the finest of the *Himalayan carnifera* for an avenue. The Khutrow Spruce Fir (*Abies Khutrow*), alias *Smithiana*, and alias *Moriuda*, is also well adapted for an avenue; and for an avenue of lower trees from India, take *Cupressus torulossa*. In planting an avenue, one kind only should be employed.

Cuttings for New Zealand (*J. Swarm*).—Cuttings of fruit-trees or bushes packed in April or May, would perish before they get half way to the equator. October is the proper time to send such things to New Zealand, and we shall let you know, however, long before that time.

Tomatos (*A Subscriber, Oxton*).—Plant them out at the end of May, five feet apart, and train against the wall or paling of your south border; if this cannot be done train them to sticks, but on no account allow them to trail on the ground.

Bees (*S. B.*).—If you cannot get some May swarms hived into your box-hives, nor yet purchase any from parties near you, apply to Messrs. Neighbour, High Holborn. If you will refer to our second volume, you will find directions for managing from month to month. If your *vines* are weak put some mulch over the surface of the border above their roots.

Sulphur Fumigating (*An Early Subscriber*).—As you have no hot-water apparatus, or hot flue in your conservatory, the safest way to fumigate it will be to have a vessel of water kept boiling over a lamp, and over the vessel of water a plate on which some flowers of sulphur are sprinkled.

Unfruitful Cherry-Tree (*G. W. P.*).—"Harrison's Heart" is only one of the many names applied to the *Bigarreau*. Like you, we once were possessed of a very fine, an ornamental, cherry-tree, which bore but little fruit until we applied seven or eight pounds of common salt, say three times a year—in spring, summer, and autumn—over the soil about its roots. Try this, and in the meantime we will make some enquiries.

Bees (*W. W.*).—All your questions about their management are answered in the "Bee-Keeper's Calendars" of our last and the present volume. The hives we prefer are Payne's Improved Cottage, for cheapness and easy management; and Taylor's, when expense is no object, and amusement chiefly is sought from the employment.

Feather-Stemmed Savoy (*Clericus, Beds.*).—Will you write to Mr. Barnes, Gardener to Lady Rolle, Bicton, near Sidmouth, Devon: he raised the variety, and will tell you how to obtain the seed. It is curious that you find *mice* get at your peas, despite a thick covering of soot, whilst Mr. Savage says they will not touch it; our preventive, which we know to be efficacious, is finely sifted *coal-ashes*, put about one inch deep and six wide over the rows.

CALENDAR FOR APRIL.

GREENHOUSE.

Air admit freely in mild weather. Give sparingly when east winds prevail, and then merely by the top sashes, to avoid cold draughts; shut up early in the afternoon, and if sunny sprinkle the plants from a fine syringe. Azaleas coming into, and in flower, water freely. Those to be retarded remove to a north aspect, under glass or even an opaque roof. Bulbs, introduce. Camellias, water freely when in flower; those done flowering keep close, to encourage growth, and shortly afterwards re-pot if necessary. Sow seeds, insert *cuttings*, *inarch*, and *graft*. Calceolarias, Cinerarias, Primroses, Cytisus, the late kinds water at the roots, after sudling the stems by syringing. Cuttings, insert; place in hot-bed or shady place according to kinds. Climbers regulate. Epacrises and Heaths done flowering, cut back, and also any other *straggling plants*, and keep them by themselves, so as to be close and warm, to encourage them to break freely. Those in, and coming into flower, keep in the airiest part. Fuchsias, water the forward ones freely. *Fumigate* with tobacco at the first appearance of fly. Geraniums, train the first, encourage the second, and pot and propagate for autumn supply. *Prepare* for general potting, but do not let a plant wait for a *time* when it wants attention. Propagate by seed, roots, cuttings, inarching, and grafting. Seedlings, remove as soon as possible from the seed pans, and prick them out singly, especially if thick. Sow balsams, cockscombs, thunbergias, &c. Pot the various *Achimenes*, and introduce tubers for a succession. Remove decayed leaves. *Stir* and loosen the surface *soil*. Succulents of all kinds water more freely. Water for all plants will now be required oftener. Vines on rafters, train. Strawberries set in. Keep rather dry until the flower trusses show themselves boldly.

R. Fish.

FLOWER GARDEN.

Annuals (Tender), prick out those sown in February and March into a hot-bed; water gently but often; sow in hot-bed; (Hardy) may be sown in borders, &c., to remain; thin those advancing. Auriculas in bloom, shelter. (See Hyacinths.) Supply with water often; those for seed plunge pots in a sheltered border, where they can have sun until 11 o'clock; plant offsets; propagate by slips; seedlings shade during mid-day. Auriculas done flowering, place out of doors, and separate off-sets. Box edgings may be made, and old taken up, slipped, and replanted; clip box edgings. Biennials, finish sowing, b.; plant out those sown last spring. Bulbs, in water-glasses, done flowering, plant in ground after cutting down stalks, but not leaves; autumn flowering, take up and store. Carnations, in pots, give liquid manure every third time, very weak, and water often; stir the earth; sow e.; plant into borders, b. Climbing plants, train and regulate. Layer Rhododendrons and hardy Azaleas. Dahlias, plant to remain, b.; or in pots to forward in a frame until May. Dress the borders, &c., indefatigably. Evergreens, plant, b. The Evergreen Oak rarely succeeds at any other time. Frames, raise, by supporters at the bottom, as the plants within grow tall. Grass, mow once a week, and roll oftener; trim edges; dress with earth if poor; and sow seeds, especially white Clover. Gravel, turn and lay afresh in dry weather; roll in rainy weather often. Hoeing and Raking are still the standard operations. Hyacinths, shelter from sun by an awning or matting over the beds, from nine to four; give the same shelter in bad weather day and night; those done flowering, take up as soon as the leaves decay; separate offsets and store. Insects, destroy with tobacco smoke or dusting of Scotch snuff. Mignonette, sow in any warm border. Mulch, put round trees newly planted. Pinks, sow. Polyanthuses, sow; plant out and propagate by offsets, b.; last year's seedlings now in bloom, mark best for propagating. Potted Plants, give fresh earth to, if not done last month; shift into larger; water freely. Perennials, those sown last spring may still be planted, and propagated by offsets; finish sowing. Sticks are required to blooming plants. Tulips, shelter from sun and wet; take off pods to strengthen bulbs. Watering is now required more frequently, yet moderately; give it early in the morning. Ranunculuses, water freely, and press the earth very hard between the rows. Roses, thin buds where very abundant; watch for grubs in the buds and crush them. Tobacco water use to destroy the aphides, by dipping the shoots in it where the insects are.

T. Appleby.

ORCHARD.

Apples may be planted, although full late. Blossoms of wall fruit, protect. Budded (Trees), last summer, remove insects from buds and shoots from stock below, also head back the stocks. Cherries may be planted. Disbud wall trees and trained espaliers of superfluous buds, in a progressive way. Forcing fruits, in hot-house, attend to, on similar principles. Grafting (late kinds of Apples, Pears, and Plums) may be done still, b. Grafts, lately inserted, see that the clay is firm, and rub off shoots below the scion. Heading down Wall and Espalier trees, finish, b., if not done last month. Insects, search for and destroy. Lime (early in the morning), dust over the leaves of trees affected by Caterpillars. Mulch over the roots of newly planted trees to keep in moisture. Peaches may be planted, but they rarely succeed. Pears may be planted. Planting in general may yet be tried, to prevent a season being lost; much care must be taken. Plums may be planted. Propagating by layers, cuttings, suckers, and seed, finish, b. Pruning, finish, b.; stop young shoots if too luxuriant. Stake trees newly planted. Strawberries, remove runners from, as they appear, and top dress, water daily in dry weather those in bloom. Vines, propagate by layers and cuttings, b.; summer dress; in Vineyard stake and hoe frequently; old borders manure. Wall-fruit, thin generally. Wasp, destroy; every one now killed prevents a nest. Water abundantly freshly planted trees.

Fig-trees may have their winter covering partially removed at the beginning of this month, and entirely by the commencement of May; and they may then be pruned and trained. Newly Grafted trees are benefited by being sprinkled by the water engine during dry weather.

Watch for the Caterpillar on the gooseberry bushes. Observe the directions about Peaches in The Cottage Gardener, and use the sulphur mixture; also the tobacco water when the trees are fairly done blossoming. Watch the development of the American blight, and use the brush. Apply soft-soap water to the stems of Pear trees infested with the scale. Top dress Raspberries, also all bush fruit, if requisite. Remove all Suckers from filberts; also from all bush fruit, wall trees, espaliers, &c. Let all Fruit borders be dressed and edged as a finish to the garden, taking care to make sound walks.

R. Errington.

KITCHEN GARDEN.

Alexanders, sow. Angelica, sow. Artichokes, plant, b., or dress. Asparagus, sow; plant; force, and dress beds. Balm, plant. Basil, sow. Beans, sow, hoe. Beets (three sorts), sow, b. Borecole, sow; prick out; leave for seed. Brocoli, sow main crop; prick out; leave for seed. Borage, sow. Burnett, sow and plant. Cabbages, sow; prick out; plant; earth up. Capsicum, sow. Cardoons, sow. Carraway, sow. Carrots, sow; weed. Cauliflowers, sow in open ground, b.; prick out; plant from glasses. Celery, sow; earth up; leave for seed. Chamomile, plant. Chives, plant. Chervil, sow; leave for seed. Coleworts, plant. Clary, sow. Cress (American), sow. Cucumbers, sow; prick out; ridge out; attend advancing crops; thin laterals. Dill, sow. Dung, for hotbeds, prepare. Earthing-up, attend to. Fennel, sow or plant. Finochio, sow. Garlic, plant, b. Horse-radish, plant, b. Hotbeds, make and attend. Hyssop, sow; plant. Jerusalem Artichokes, plant, b. Kale (Sea), sow and plant, b.; dress beds. Kidney Beans (dwarfs), sow; (runners) sow, e. Lavender, plant. Leeks, sow, b., e.; leave for seed. Lettuces, sow weekly; plant from frames, but they now do better without moving; prick out; tie up. Marigolds, sow. Marjorams, sow and plant. Melons, sow; prick out; ridge out; attend to advancing; thin laterals gradually; day temp., 80°; night, 70°. Mustard and Cress, sow; leave for seed. Mushroom-beds, make; attend to. Mint, plant. Nasturtiums, sow. Onions, sow, b., e.; weed; leave for seed; (Potato and Tree), plant, b. Parsley, sow; leave for seed; (Hamburgh), sow. Parsnips, sow, b.; hand weed. Peas, sow; hoe; stick. Pennyroyal, plant. Pompions, sow, b. Potatoes, plant; attend forcing. Purslane, sow. Radishes, sow; thin. Rape, sow. Rhubarb, plant. Rocambole, plant. Rue, plant. Salsafy and Savory, sow, e. Savoys, sow, b.; prick out. Scorzonera and Skirrets, sow, e. Shallots and Sage, plant, b. Sorrels, sow and plant. Spinach, sow; thin; leave for seed. Tansy and Tarragon, plant. Thyme, sow and plant. Tomatos, sow. Turnips, sow, b., e.; leave for seed. Turnip Cabbage, sow. Wormwoods, sow.

G. W. J.

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